



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga

New Zealand



National Trends in the ICT PD School Cluster Programme 2004-2006

Report to the Ministry of Education

Vince Ham

RESEARCH DIVISION

Wāhanga Mahi Rangahau

ISBN 978-0-478-13828-3

Web Copy 978-0-478-13829-0

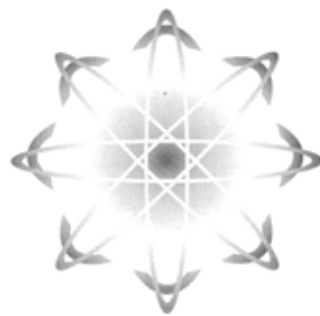
RMR-878

© Ministry of Education, New Zealand — 2008

Research reports are available on the Ministry of Education's website Education Counts:
www.educationcounts.govt.nz/publications.

Opinions expressed in this report are those of the authors and do not necessarily coincide with those of the Ministry of Education

**National Trends in the
ICT PD School Clusters Programme
2004-2006**



**A report to the New Zealand
Ministry of Education**

Vince Ham



technology | innovation
learning | research

Final Report to the Ministry of Education on the Evaluation
of the ICT PD School Cluster Programme 2004-2006,
submitted by CORE Education Ltd.
Copyright: CORE Education Ltd.

CORE Education NZ Ltd
PO Box 13678
Level 7, 151 Kilmore St
Christchurch
New Zealand

<http://www.core-ed.net>
Contact: vince@core-ed.net

Dr. Vince Ham - Project Coordinator
Hasan Toubat – Researcher

CONTENTS

EXECUTIVE SUMMARY	1
Background	1
Findings	1
INTRODUCTION	5
The 2004-2006 ICT PD School Clusters in the National Strategy for ICT in Schools	5
Programme goals	6
Structure of the Report	6
METHODOLOGY	9
Research questions	9
Research strategy and data collection	9
Respondent demographics	10
EFFECTS OF THE 2004 – 2006 ICT PD PROGRAMME ON TEACHERS.....	13
Teachers’ ICT skills	13
Teacher confidence about the use of ICTs	14
Teachers’ understanding of the role of ICTs in teaching and learning	16
Teachers’ classroom practices	19
PARTICIPANT EVALUATIONS OF THE PROGRAMME.....	28
Teacher satisfaction with the programme.....	28
The ICT PD programme’s contribution to teachers’ increased ICT usage.....	29
Teachers’ opinions on various aspects of the ICT PD programme	30
COMPARISONS WITH PREVIOUS CLUSTER COHORTS.....	33
Teacher skills.....	33
Teacher confidence.....	34
Student learning activities	35
CONCLUSION.....	39
REFERENCES	39
APPENDICES	41
Appendix 1	43
Appendix 2	45
Appendix 3	53

Executive Summary

Background

This research report is submitted to the Ministry of Education as part of an ongoing evaluation of the Information and Communication Technologies Professional Development Cluster Programme (ICT PD), a teacher professional development initiative announced in the strategy documents *Interactive Education: An Information and Communication Technologies Strategy for Schools* (Ministry of Education, 1998) and *Digital Horizons: Learning Through ICT: A Strategy for Schools* (Ministry of Education, 2001, Revised 2003). This report on the 2004-2006 cohort of ICT PD cluster teachers supplements, and makes comparisons with, the evaluations of the first four ICT PD Cluster Programmes submitted to the Ministry in 2002, 2004, 2005 and 2006.

As outlined in the performance agreements between the Ministry and the ICT PD clusters, the ICT PD School Cluster Programme in New Zealand is aimed at increasing teachers' ICT confidence, skills and pedagogical understandings of ICTs, increasing administrative efficiency in schools, fostering quality learning communities, increasing the frequency and quality of the integration of ICTs to support effective classroom teaching and learning and improving student achievement.

The research reported here takes these performance criteria as its starting point to provide a national overview of the programme's impact on teachers, teaching and learning in New Zealand, by means of an analysis of the results of a pre- and post- survey of c.3,070 participant teachers.

Findings

The overall finding of the study is that the 2004-2006 ICT PD programme had a marked and significant effect on the teachers and students in cluster schools with respect to all of its key goals. There were very high levels of goal achievement reported by participants, and marked increases or changes with respect to all of the relevant Ministry's objectives as outlined in cluster performance agreements. At the national level, the programme achieved its overall goals of: significantly increasing teachers' skills and confidence with ICTs, improving teachers' understandings of the role of ICTs in teaching and learning, and providing quality ICT-mediated learning experiences for students. The programme for the 2004-2006 cohort increased teachers' ICT skills, confidence and understandings about ICTs, and significantly increased routine student use of a range of ICTs for learning in classes. The 2004-2006 programme achieved levels of participant satisfaction even higher than the preceding (2003-2005) cohort, and achieved overall increases in skills, confidence, understanding and classroom/student usage of ICTs for learning in orders of magnitude at least similar to those of earlier cohorts.

While stating these as general effects, we note that overall the ICT PD programme continues to have a greater impact among primary teachers and schools than among secondary.

Specifically, we found that:

- The great majority of teachers expressed high levels of satisfaction and goal achievement at the end of the programme. Participant satisfaction, while high across the board, varied somewhat by sector and length of time in the programme, with primary teachers and those who had been in the PD programme for most of the 3 years stating higher levels of satisfaction and goal achievement than secondary teachers and those who were in the programme for only a few months. The great majority of participants' goals related to the acquisition of technical skills, gaining ideas for ICT-based teaching/learning activities, increasing use of ICTs for school administration, and improved understanding of teaching and learning generally.
- The programmes were seen by the majority of participants as having been a 'significant' event in their overall development as teachers, which for many contributed well beyond any ICT-specific issues of increased technical skill, to encompass improved understandings in relation to teaching and learning more generally. Some 74% of the teachers indicated that the programme had contributed new ideas about teaching and learning, including 12% who felt that the programme had provided them with a whole new approach to teaching and learning. The rest said that the programme had played a more 'confirming' role, consolidating current ideas/understandings about teaching and learning. Primary teachers were more likely to see the programme as contributing *new* insights and ideas in this regard than secondary teachers.
- Teachers generally appreciated all of the ways the programmes were delivered and the knowledge and expertise of particular facilitators. The content of the programmes, being for most programmes a mix of skills development, classroom ideas and principles of effective teaching and learning generally, was seen as relevant and effective. Prominent among the most appreciated aspects of the programmes too, were the various opportunities provided to share ideas and problems and reflect together on their use of ICTs, both within clusters and through the various regional and national conferences, suggesting that a learning community focused on critical reflection of classroom ICT practice is continuing to develop.
- At the end of the programme the greatest persisting concerns for teachers with regard to their professional use of ICTs were a lack of student access to equipment, a perceived lack of time to keep up to date, lack of technical support and technical reliability, and some concern about the continuing need to self-upskill in using new software packages and technologies as they become available.
- There was a marked and significant increase in teachers' ICT skills over the period of the programme. Teachers' reported skill levels on entry to the programme were generally moderate, though still higher than those for previous cohorts, and still variable across different ICTs. There was a distinct tendency for males and secondary teachers to report higher entry skill levels than female or primary teachers, though such differences were much reduced by the end of the programme.
- By the end of the programme impressive majorities of teachers were reporting moderate or high skill levels with regard to file management (93%), basic computer operation (93%), word processing (95%), the Internet (95%) and telecommunications (95%). Lower, but still relatively high, rates of moderate to high skill were reported with regard to graphics (78%), multimedia packages (77%), spreadsheets (72%) and databases (65%), and these still show significant

increases compared to entry point proportions. The *increase* in teachers' skill levels during the programme was considerable across all ICTs, but it was most notable in relation to Internet, graphics and multimedia applications.

- There was also a marked and significant increase in teachers' confidence about their professional use of ICTs over the period of the programme, both in terms of their confidence as personal users and in relation to students using ICTs in their classes. On entry the great majority of participants were either 'not confident' or 'neutral' about their professional use of ICTs, female teachers and primary teachers being less confident than male and secondary teachers. By the end of the programme a solid majority of all the demographic groups studied were reporting moderate or even high levels of such confidence. Moreover, the longer teachers were in the programme, the greater was the extent of their gain in confidence, and throughout the programme levels of confidence as personal users were higher than those related to classroom use of ICTs.
- The effect of the ICT PD programme on teachers' classroom practices has been substantial. Over a third acknowledged that over the programme period their classroom practices had changed to 'a large extent' or 'completely', while 80% felt their practices had changed at least to some extent. Female and primary teachers reported greater change in this regard than male or secondary teachers.
- On entry to the programme teachers were already generally positive about the value of using ICTs for teaching and learning. At the end of the programme they showed a similarly positive disposition towards the value of ICTs in the teaching and learning process, but many stated that they now had a clearer conception of how its educational value might be judged.
 - The most frequently reported effects of using ICTs with classes on their *practice* included: teaching with increased confidence and enthusiasm, expanding their repertoire of teaching techniques, using a wider range of activities, and catering for a greater range of student need across a broader range of curriculum objectives.
 - The most prominent effects of the programme in terms of developing teacher *understandings* about learning were expressed as: a better understanding of student-centred teaching and learning, getting new ideas about establishing a resource-rich learning environment, increased knowledge of teaching and learning styles or approaches, increased awareness of 'quality' in teaching and learning, challenging pedagogical perspectives through sharing and discussion, and the accumulation of a variety of practical classroom ICT-based activities.
- There was a marked and significant increase in teachers' use of ICTs with their classes as a result of the programme. The great majority of teachers had either never used ICTs with classes prior to the programme, or had only used them once or twice a year. By the final year of the programme the majority of participating teachers reported that their students were using ICTs on a routine basis (i.e.: in most or all units of work over the year).
- While the proportion of units of work involving student use of ICTs increased significantly during the programme, the *range* of ICTs used by students for learning remained fairly limited. Word Processors, the Internet, and slideshow presentation packages are by far the most frequently used ICT applications in classes.

- Primary teachers reported using ICTs in a greater proportion of their units of work than secondary teachers. The other significant predictors of increased classroom usage of ICTs by teachers in the clusters were their rising levels of confidence with and about the technology, and the length of time they were actively engaged in the PD programme.
- The surveys provide some proxy evidence of the downstream effects of the ICT PD programme on enhancing the 'quality' of student learning experiences, through such things as the learning outcomes reported by participating teachers as they observed students engaged in ICT-based activities, the variety of curriculum goals met and Essential Learning Areas covered as students engaged in ICT-based activities.
 - Teachers tended to report the learning outcomes from student use of ICTs in terms of: increased student-centredness in lessons, increased student motivation, coverage of a wide range of curriculum topics and objectives, student acquisition of ICT skills, and increased opportunity for learning activities which promoted communications skills, enquiry skills, high order thinking, creativity and a range of social skills.
 - The largest proportion of ICT-based student activities reported by teachers related to the Languages Essential Learning Area (39%), followed by Science (15%), Social Studies (13%), and Mathematics (12%)
- In most respects the effects and trends listed above for the 2003-2005 ICT PD national cohort are similar in both nature and magnitude to those reported for the three earlier cluster cohorts. In general, the same effects, of a similar size, have been identified in all cohorts. The only notable exceptions or differences between the 2004 cohort and earlier cohorts in terms of programme effect or effect size were:
 - The skill levels of teachers in the 2004 cohort on entering the programme, and also on exiting it, were generally higher than those of the earliest cohorts but similar to those reported for the 2003 cohort, which immediately preceded it. Skill levels, both on entry and exit, as well as programme impacts on skills, are 'flattening off' as successive cohorts begin and finish their programme with higher skill levels across the range of ICTs used in education.
 - There were some cohort differences in terms of the learning outcomes of ICT use by students in the 2003 and 2004 cohorts compared to earlier cohorts. Students in the 2003 and 2004 cohort seemed, for example, to engage in problem solving activities (mostly through spreadsheet use) and information processing activities (mostly through Internet use) *more* than those in the previous cohorts, and in curriculum practice activities, such as Drill and Practice, *less*.
 - Levels of goal achievement and meeting of expectations were significantly higher for the 2004 cohort than for the earlier 2003 cohort, across all of the groups of goals identified. However, this may be explained by demographic differences between the two cohorts rather than being a commentary on the relative performance of the two programmes.

Introduction

This research report is submitted to the Ministry of Education as part of an ongoing evaluation of the Information and Communication Technologies Professional Development Cluster Programme (ICT PD) a teacher professional development initiative announced in the strategy documents *Interactive Education: An Information and Communication Technologies Strategy for Schools* (Ministry of Education, 1998) and *Digital Horizons: Learning Through ICT: A Strategy for Schools* (Ministry of Education, 2001, Revised 2003) and *Enabling the 21st Century Learner: An e-Learning Action Plan for Schools* 2006-2010 (Ministry of Education, 2006)..

The 2004-2006 ICT PD School Clusters in the National Strategy for ICT in Schools

In 1998 a national 'ICT Strategy for Schools' was announced which established a new, national system of funded professional development school clusters. This programme has become known as the ICT PD School Clusters programme. The main features of this programme, which has become an ongoing feature of the teacher professional development landscape in New Zealand since 1999, are:

- The bulk of the programme funding is devolved directly to schools as both 'producers and consumers' of their own PD programmes.
- The programmes are only available to *groups* of schools, which have committed to a 'clustered' model of professional development for the benefit of teachers in all the participating schools.
- The programmes are funded over three years, for programmes that are to last for three years.
- No particular delivery model is mandated in the contracts themselves. Within very broad parameters, applicants for ICT PD cluster funds are expected to develop and propose their own models of delivery, rather than to implement a variation on a predetermined, Ministry-approved model.
- There is central coordination of the programmes through a team of National Facilitators who manage the cluster monitoring process and provide professional development support, advice and coordination to the clusters as a national community.

The basic framework of the ICT PD cluster programmes is centrally prescribed. The programmes are to focus on the integration of ICTs into a variety of teachers' professional practices. A 'Lead School', often, but not necessarily, one with a reputation for best practice in the area of ICT use, forms a collaborative partnership with other schools for the provision of up to three years of teacher professional development in those schools. Each cluster receives c.\$120,000 per annum in central funding. These funds are to be spent on teacher professional development, and may not be used to defray schools' hardware, software or infrastructure costs. Beyond that common brief, however,

schools are free to group themselves as they wish, and are encouraged to develop and propose their own models and modes of delivering their programmes.

Early in 1999, 23 such ICT PD school clusters in various parts of the country were selected as the first cohort under the scheme, finishing their three year round of development in 2001. The government decided to continue the programmes on a rolling basis from 2001 onwards. The cohort which is the subject of this report was thus the fifth intake or cohort of clusters. They began their programmes in January 2004 and completed at the end of 2006. This report on the 2004 cohort of ICT PD cluster teachers thus supplements, and makes comparisons with, the evaluations of the first four ICT PD Cluster Programmes submitted to the Ministry in 2002, 2004, 2005 and 2006. These earlier programmes are referred to herein as the '1999 cohort', the '2001 cohort', the '2002 cohort' and the '2003 cohort' respectively.

Programme goals

The ICT PD Cluster Programmes in New Zealand have been generally aimed at increasing teachers' ICT skills and pedagogical understandings around ICTs, at increasing the use of ICTs for professional and administrative tasks in schools, and at increasing the frequency and quality of the use of ICTs in schools to support classroom teaching and student learning.

These broad goals were rearticulated as a number of specific performance measures and expected outcomes included in the various cluster contracts. The specific statement of these goals changed during the course of the three years of the projects, although the general tenor of them remained the same. The goals formally identified for the last year or so of the 2004 cohort programmes were that:

- Teachers' confidence and skills in using ICT increase
- ICT use is integrated into pedagogical practice across the curriculum
- Teaching using ICT is focused on student achievement
- ICTs are used to enable quality learning communities
- Increased administrative efficiencies are achieved within cluster schools

Structure of the Report

The research for the 2004-2006 ICT PD Cluster Programme provides a national overview of the programme's impact on teachers, teaching and learning in New Zealand, through an analysis of the results of a pre-post survey study of teachers from all clusters. The report begins with an analysis of the relative impacts of the programme over time in terms of the key performance goals of the programme listed. For convenience we group these goals into three main areas, each of which is reported as a separate section:

- The effects of the PD programmes on **teachers themselves**, as indicated by the effects on teacher skills, confidence, and understandings in relation to ICTs in teaching and learning.
- The effects of the PD programmes on **usage of ICTs by students**, as indicated by rates of classroom usage, curriculum coverage, and the provision of 'quality learning experiences'.

- The provision of **appropriate advice, PD and support** by the various cluster programmes, as indicated by reported levels of participant satisfaction and goal achievement.

The report finishes with a comparison of the key findings for the 2004-2006 cohort with those for the earlier cohorts, 1999-2001, 2001-2003, 2002-2004 and 2003-2005.

Methodology

Research questions

The brief for the research on the 2004 cohort of ICT PD clusters is to provide a broad national profile of the impact of the programme across the country as a whole. It has not been our role to evaluate specific clusters or their particular PD models. To this end the core research question being addressed is not so much to identify which particular models of PD are most effective, but rather to conduct a survey-based study to evaluate how well, and in what respects, the national ICT PD School Cluster initiative met the objectives of stakeholders and participants for the cohort.

In doing this we addressed the following core research questions:

1. How effective overall was the ICT PD programme in meeting stakeholder and participant goals?
2. How effective was the ICT PD programme overall in increasing teachers' ICT skills, confidence and knowledge related to the educational applications of ICTs?
3. How effective was the ICT PD programme overall in promoting quality classroom learning experiences for students?
4. How much, and in what respects, have these effects changed as the model has rolled out over time to new cohorts?

Research strategy and data collection

Survey data were gathered from all of the 2004 cohort clusters. These comprised responses from both pre- (Baseline) and post- (End of Project) programme postal surveys of all participants. In order to maximise validity of comparison across cohorts, the Baseline and End of Project instruments were based on the equivalent questionnaires developed for the previous cohorts in the programme and reported separately in previous reports to the Ministry.

Table 1: Timetable of research surveys in ICT PD cluster cohorts, 1999-2007
(Shaded surveys are those relevant to this report)

	1999	2001	2002	2003	2003	2004	2004	2005	2005	2006	2006	2007
1999 cohort	BL		EOP									
2001 cohort		BL			EOP							
2002 cohort			BL	(OL1)	(OL2)	(OL3)	EOP					
2003 cohort				BL	(OL1)	(OL2)	(OL3)	(OL4)	EOP			
2004 cohort						BL					EOP	
2005 cohort								BL				EOP
2006 cohort										BL		
2007 cohort												BL

Key: BL=Baseline survey; OL1, 2,3,4 = Online surveys; EOP = End of Project survey

The profile of the 2004 cohort *on entry* to the programme, as established by the baseline survey of 2004, along with entry-point comparisons between this and previous cluster cohorts, has been

reported separately to the Ministry (Ham *et al.* 2004). This report focuses on the *effects* of the programme evidenced by comparing results from the baseline survey of 2004 with those of the End-of-Project survey conducted in October 2006.

In order to further increase the points of comparison, the End of Project survey asked participants to identify both their pre- and post-project skill levels and classroom ICT experiences, so that these could then be compared with parallel questions in the baseline survey.

Respondent demographics

Table 2: Number of responses to 2004-2006 Baseline and End-of-Project surveys, by cluster

Cluster	Baseline	EoP	Cluster	Baseline	EoP
A Tatou Wawata Cluster / Marina View School	121	65	Remuera Cluster / Remuera Primary School	130	62
Alexandra Cluster / Alexandra Primary School	75	48	Riverside Cluster / Hamilton East School	151	106
Alfriston & Botany Downs SCC / Alfriston College	28	70	Schools of the Future Cluster / Samuel Marsden Collegiate School	169	103
Aoraki Yr 7-13 Schools Cluster / Geraldine High School	130	120	South Rangitikei ICT Cluster / South Makirikiri School	69	64
Auckland Secondary Schools / Auckland Girls' Grammar School	121	108	The Spiders Web / Avondale Primary School	70	54
Baylink Cluster / Napier Girls' High School	249	201	Summerland ICT Cluster / Summerland Primary School	88	67
Beachlands Cluster / Beachlands School,	78	68	Tamaki Makaurau Rumaki Cluster / Te Wharekura o Manurewa,	0	19
Western BOP Secondary Schools Cluster / Otumoetai College	209	162	Taieri Te Awa Cluster / Elmgrove School	64	58
Central Taranaki Primary Schools Cluster / Stratford School	68	48	Tauranga City Secondary Cluster / Mt Maunganui College	263	162
Northern Wairoa Cluster / Dargaville Primary School,	108	57	Opawaho Cluster / Opawa School	91	68
East Coast E Learning / Champion College,	134	77	Te Aroha Schools Admin. Cluster (TASAC) / Elstow-Waihou School,	59	46
Kelvin Road Cluster / Kelvin Road School,	77	52	Te Ika a Maui ICT Cluster / TKKM o Te Matai	15	29
Te Kopu ICTPD Cluster / Matatoki School	38	21	Te Kura Maori o Porirua Cluster / Te Kura Maori o Porirua	56	10
Manurewa Cluster / Leabank School	133	69	Te Papanui Cluster / Kendal School	94	49
Marlborough Mark II Cluster / St. Mary's - Blenheim	65	57	Te Wa Cluster / Christ the King School	67	62
Mt Roskill Group / Mt Roskill Intermediate School	100	73	Waimakariri ICT Cluster / North Loburn School	63	60
Murrays Bay Cluster / Murrays Bay Intermediate School	170	101	Waimea Cluster / Waimea College	144	145
Oamaru Secondary Cluster / St Kevins College	93	77	Wairarapa E-Learning Community / Kuranui College	153	128
Otautau-NeWSnet Cluster / Otautau School	66	49	Whangaparaoa and Orewa Schools Cluster / Whangaparaoa School	98	79
Peninsula Schools Cluster / Belmont Intermediate	132	103			
Pt England ICT Cluster / Pt England School	97	73	Grand Total	4136	3070

In all, 4,136 Baseline survey responses and 3050 End of Project survey responses were received from teachers in the 40 cohort clusters. This represents an estimated response rate of well over 90% for the Baseline survey and c.75% for the End of Project survey. One cluster was granted an extension of time to March 2007 in order to complete their programme and has been included counted in the End of Project figures.

Significant staff changes during the programme in several clusters, eventual non-participation by some teachers included in the Baseline surveys, and higher perceived relevance of the Baseline at the beginning of the project, may account for some of the difference in response rates between the two surveys. Since the surveys were an 'expected' part of what clusters did as part of the PD programme these response rates were high. Although the response rate was slightly lower for the End of Project than for the Baseline survey, overall, the response rates for both cohort surveys was higher than those attained from previous cohorts.

It appears that the demographic distribution of the respondent group was dissimilar to that of the broader teacher population in the ICT PD programmes in terms of gender and, to a lesser extent, in terms of sector. About 79% of respondents were females and 21% were males, which, when broken down by sector represents a ratio of female to male teachers within the primary sector of 92%:8% and in the secondary sector of 64%:35%. Compared to the general gender distribution of teachers in their respective sectors, males were notably underrepresented in the 2004 ICT PD cohort.

It is noted also that about 56% of responding teachers taught at primary school level, 41% at secondary, and 3% taught both primary and secondary students. As had been the case for three of the four previous cohorts, the proportion of primary participants was larger than that of secondary. In this cohort too, therefore, primary teachers are over represented compared to secondary teachers, though not by as a great a margin as in the 1999, 2001 and 2002 cohorts. The immediately previous (2003) cohort remains the only ICT PD cohort since 1999 in which secondary and primary teachers, and males and females have taken part in the same proportion as in the general teaching population.

Table 3: Respondents by school sector (end of project survey)

School Sector	Total	%
Primary	1549	56%
Secondary	1131	41%
Both	97	3%
N	1632	

A strong correlation was evident in studies of previous ICT PD cohorts between the length of time that individual teachers were actively engaged in the programme and their subsequent levels of confidence and classroom usage of ICTs. This may account for the tendency for respondents to have been actively engaged in their programmes for long rather than short lengths of time. In the 2004 cohort some 60% of teachers' were actively engaged in the ICT PD programme for the most of the 3 years of the programme. Only 7% of teachers had been in a programme for short-term periods of less than six months (Table 4). These proportions are comparable with those for the two prior cohorts.

Table 4: Respondents by length of time actively involved in the ICT PD programme

Length of Involvement (Months)	Total	Percentage
0-6	196	7%
7-12	252	9%
13-18	425	15%
19-24	178	6%
25-30	54	49%
31-36	1410	12%
N	346	

Effects of the 2004 – 2006 ICT PD Programme on Teachers

As expressed in clusters' performance agreements, three of the main goals of the ICT PD programme with regard to the effects on teachers themselves were:

- Increased skills among teachers across a range of educationally useful ICTs.
- Increased confidence about their personal use of ICTs and about the use of ICTs with classes.
- Improved understandings of the roles that ICTs can play in improving classroom teaching and learning.

Nationally, there was a clear and significant increase/improvement in relation to all three of these indicators over the period of the programme.

Teachers' ICT skills

Over the period of the programme teachers' skills in using ICTs increased significantly, especially, but not exclusively, for those who at the beginning of the programme had rated their skill levels as either very low or non-existent. As can be seen in Table 5, below, there were significant reductions across the board in the proportions of teachers who rated their skills as low or non-existent, and significant increases in the proportion who rated their skill level as high or very high. This was the case even with regard to ICTs such as word processing where the great majority of teachers entered the programme with reasonable pre-existing levels of competence. By the end of the programme solid majorities of teachers felt they had moderate or high skills with regard to file management (93%), basic computer operation (93%), word processing (95%), Internet (95%) and telecommunications (94%). Lower but still relatively high levels of end of programme competence were reported with regard to graphics (78%), spreadsheets (73%), databases (65%) and multimedia packages (77%), though these still show significant increases compared to entry point proportions. The increase in teachers' skill levels during the programme was remarkable across all ICTs, but it was most notable in relation to Internet, graphics and multimedia applications.

Table 5: Teachers' skill levels with various ICTs before and after the programme

Skill level	File Management		Basic Operation		Word Processing		Spreadsheet use		Database	
	Before	After	Before	After	Before	After	Before	After	Before	After
High/Very high	34%	69%	29%	65%	45%	80%	20%	39%	14%	30%
Moderate	28%	23%	32%	29%	29%	15%	24%	34%	25%	35%
Low/Nil	38%	8%	39%	7%	26%	5%	56%	27%	61%	35%
Total n =	3000	2992	2999	2995	3011	3007	2984	2977	2947	2934

Skill level	Graphics use		Internet use		Telecommunications		Multimedia presentation	
	Before	After	Before	After	Before	After	Before	After
High/Very high	15%	45%	31%	71%	38%	72%	15%	47%
Moderate	25%	33%	33%	24%	29%	22%	23%	30%
Low/Nil	60%	21%	36%	6%	32%	6%	62%	22%
Total n =	2984	2977	3011	3004	3009	2998	2974	2963

Demographic analysis of these results show some continued relationship between gender and teachers skill levels in favour of male and secondary teachers at the start and the end of the programme. However, these differences were greatly reduced, or in some cases such as multimedia skills, disappeared altogether, over the period of the programme. At the end of the three years the most notable remaining differences were that secondary teachers reported higher skill levels with spreadsheets and primary teachers reported higher skill levels in the use of multimedia and graphics.

The impact of the programme on teachers' skill levels was clearly significant across the full range of educationally useful skills measured, though skill with certain ICTs such as spreadsheets among secondary teachers and multimedia and graphics packages among primary teachers seem to have been emphasized in the different sectors.

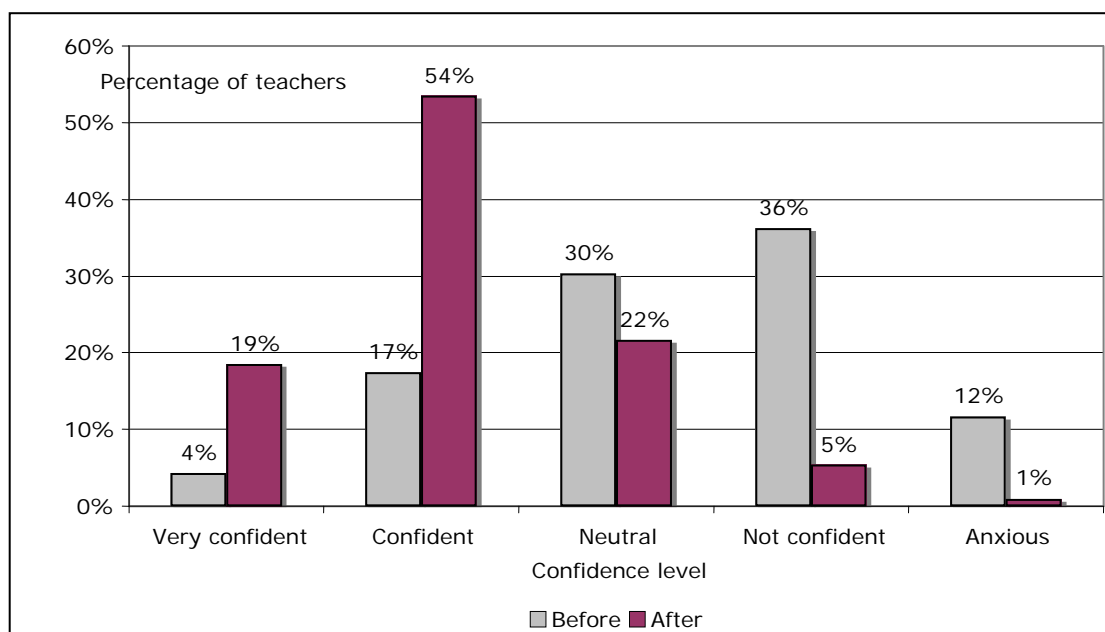
Teacher confidence about the use of ICTs

Changes in the confidence of teachers about using ICTs were investigated with regard to two elements: their confidence as personal users of ICTs, and their confidence about using ICTs with classes of learners. Both of these increased significantly over the period of the programme from what overall were moderate and low levels of confidence respectively on entry.

On entry to the programme many teachers stated that they were less than confident as personal users of ICTs. Five percent of teachers classified themselves as 'anxious' and 28% of them were 'not confident' in this regard. By the end of the programme 1% of the teachers said they were 'anxious' and only 4% were still 'not confident' about the personal use of ICTs. By the end of the programme over four-fifths (83%) of teachers stated that they had become either 'confident' or 'very confident' about the personal use of ICTs.

Teachers' confidence about ICT use **with classes** also increased significantly during the programme. On entry teachers were even *less* confident about using ICTs with classes than they had been about personal use. At that point 12% of them self-identified as 'anxious' about this, and 36% identified themselves as 'not confident'. By the end of the programme, however, the percentage of 'anxious' or 'not confident' teachers had dropped from 48% to 6%. Correspondingly, the percentage of 'confident' or 'very confident' teachers had increased from 21% to 63%. Figure 1 illustrates the change in teachers' confidence about the use of ICTs with classes.

Figure 1: Teachers' confidence about using ICTs with classes before and after the ICT PD programme



An analysis of the change in *individuals'* confidence levels over time confirmed this overall trend. Just under a quarter of teachers, mostly those with higher confidence levels at the start, did not change their confidence level over time. Some 38 % reported some increase in confidence about using ICTs with classes, and 39% reported a significant increase (i.e. they rated themselves at least two points higher on the 5 point confidence scale at the end compared to the beginning).

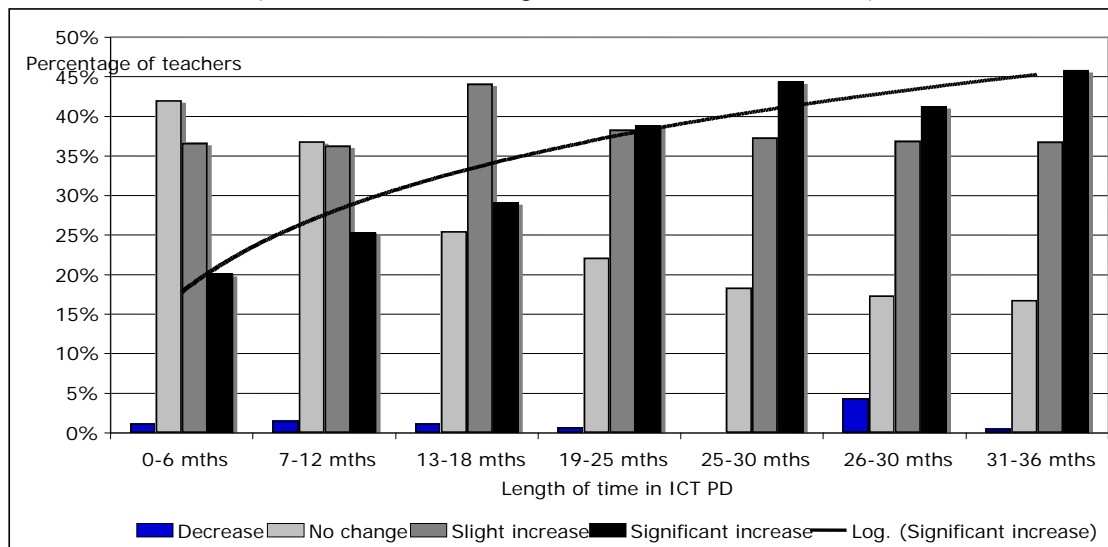
As was also the case for confidence gains in relation to personal use, these confidence gains in relation to *classroom use of ICTs* were related to all of gender, sector and length of involvement demographics. Female teachers made significantly more confidence gains than male teachers ($X^2 > 35$; $df=3$; $p < .001$), primary teachers reported significantly more gains in confidence about classroom use than secondary teachers ($X^2 > 35$; $df=3$; $p < .001$), and confidence gains were also positively correlated with the length of time teachers had actively participated in the programme ($X^2 > 35$; $df=8$; $p < .001$) (See Table 6, & Figure 2). The longer teachers took active part in ICT PD the greater the increase in their confidence about using ICTs with classes.

Table 6: Increases in teachers' confidence about use of ICTs with classes during the programme, by gender and sector

Change in confidence	Female	Male	Primary	Secondary
Decrease	1%	1%	1%	1%
No change	20%	30%	14%	33%
Slight increase	37%	40%	38%	37%
Significant increase	42%	29%	46%	29%

Figure 2: Increases in individual teachers' confidence about use of ICTs with classes, by length of active involvement in programme

(Trend line shown for 'significant increase' in confidence)



Teachers' understanding of the role of ICTs in teaching and learning

To address this indicator we asked teachers what, on the basis of their experience with ICTs during the programme, they saw as the benefits of ICTs in teaching and learning; what concerns they had about the incorporation of ICTs into their teaching programmes; how effectively they felt they were integrating ICTs into their classroom work by the end of the programme; and how, if at all, incorporating ICTs had changed their ways of teaching. Their responses to these questions give some overview of what the teachers' own understandings in relation to the role of ICTs in education were at the end of the programme and how widely spread such views were among them.

Teachers in this cohort generally had positive views on the role of ICTs in education. By the end of the programme many of the teachers' still felt there were a number of constraints on the effective implementation of ICTs into teaching and learning, but their views had, if anything, become even more positive about their potential in other respects, both in improving their teaching and in fostering effective learning.

When asked directly to what extent the ICT PD programme had contributed to their understanding of teaching and learning generally, beyond their understandings of ICTs and the technology itself, some 60% of the teachers indicated that the programme contributed new ideas about teaching and learning, including 8% who felt that the programme had provided them with a whole new approach to teaching and learning. Some 29% of teachers said that the programme had played a more 'confirming' role, consolidating current ideas/understandings about teaching and learning. It would seem also that primary teachers were rather more likely to see the programme as contributing new insights and ideas in this regard than secondary teachers (Table 7).

Table 7: Contribution of ICT PD to general understandings of teaching and learning

	Total	Primary	Secondary
Provided a new whole approach to teaching and learning	12%	17%	3%
Contributed some new ideas about teaching and learning	62%	63%	61%
Confirmed current ideas/understandings about teaching & learning	19%	16%	24%
Not at all	7%	4%	11%
Total	2,965	1,663	1,169

When teachers were asked *how* and in *what respects* the ICT PD programme had contributed to their understanding of teaching and learning, the common themes that emerged ranged from the acquisition of practical lesson ideas to deeper understandings of pedagogy in general.

Not everyone reported outcomes extending beyond the technical towards deeper understandings of teaching and learning. There were a number of comments, for example, along the lines that the programme “has [only] confirmed the use of computers as a tool, and the teacher as a facilitator, that ICT PD “hasn’t really changed my thinking”, that ICT “is (just) another means of getting ideas across rather than just book and paper work”, or that “teachers should use a ranges of devices -ICT does not mean that a lesson will be successful [just] because it contains ICT.”

However, this group was a distinct minority. By far the greater weight of commentary about the effect of the programmes on teachers’ understandings of teaching and learning was positive, and identified a number of key ways in which the programme had supplemented, challenged and even changed those understandings.

For many, the programme enhanced their practical pedagogical understandings. This group focused on the ways in which the programmes provided *classroom teaching strategies* for more effective curriculum provision, both with ICTs and more generally.

Another substantial group felt they now had a better understanding of *student-centred teaching and learning*, or that in some way their teaching had become more student-focused or more relevant to students as a result of the programme.

Examples of statements on classroom strategies

- “Opened the doors to ways of teaching and instruction-taking risk with new ideas.”
- “Having [to move] across to a whole new learning media, ideas etc and sharing ideas, concerns with other schools.”
- “Units of work shared among people.”
- “Given me new and exciting ways of teaching and motivating children. New ways of stimulating chn's learning”
- “[More] Co-operative group work-/ Students sharing skills expertise in area of strength.”
- “Added a broader range of learning activities.”
- ”Teaching can be delivered in a fun way, integrated with other curriculum areas.”
- Ideas to use in class from ICT champions.”
- New ways to introduce concepts/ reinforcement of skills.”
- Seeing and hearing about .. activities and then having the opportunity to try and "do it" with children and teachers learning together.”
- “By providing me with new ideas & ways to do things.”

Examples of statements on student-centredness

- “Greater focus on learning intentions/ success criteria shared with students. Them being **part of setting success criteria.**”
- “More understanding of what a 21st century learner is and how to bring them more on board with their own learning.”
- “Kids [are] more independent in researching for topic etc.”
- “Trialled inquiry approach, units more child centred - have used kids in discoveries when teaching ICT skills kids using cam, discovering for themselves in computer.”
- “I've come to realise that student live in an ICT rich world and that the use of ICT in their learning is a natural event for them.”
- “Has made it more interactive with students being active in their learning ... more positively engaged in research projects.”
- “Emphasis on students - centred learning - active learners - participating/greater role in their learning.”

Still others commented on the fact that through the programme they had broadened the *resource base* for their teaching, and had gained new ideas about setting up a more resource-rich teaching and learning environment for their students.

Examples of statements on making their teaching more 'resource rich'

- "[It has] given me some new ways of teaching and more range of resources."
- "Easier to access to some great resources."
- "There are a number of good tools and resources 'out there' but they are not 'in' our classrooms."
- "Introduced me to a whole lot of new resources/ programmes and in particular interactive learning processes for the students."
- "Having the resources available through Smartboard, Internet, etc. **has opened up a limitless** range of tools."
- "There are a number of good tools and resources 'out there'"
- "Introduced me to a whole lot of new resources/ programmes and in particular interactive learning processes for the students."
- "Has opened up my eyes to the number of resources out there."
- "[I have an] awareness of how students tuned in to ICT-access to some good resources."
- "Just what is available from seeing and sharing ideas."

A substantial number stated that they had increased their knowledge of different *teaching / learning styles and theories*, or were enabled to make clearer connections between their day to day practice and the various learning and teaching theories and models outlined in the programmes.

Examples of statements about linking practice with learning theories, models and research

- "Now I use an integrated inquiry approach."
- "Increased thinking skills and inquiry approach."
- "Reflection used more + whole inquiry approach - thinking strategies, graphic organiser etc."
- "Researched extra thinking hat skills and lessons."
- "Developing a greater understanding of inquiry"
- "Has helped in addressing learning styles"
- "Hard to isolate ICT from understanding about thinking and literacy but am more aware about **visual and intuitive learning patterns** and the place of ICT in our students' lives"
- "Thinking keys, inquiry learning, Sauce model. Confirmation that this learning is to be valued and encouraged. Greater pupil participation and buy in."

And finally, there was also a substantial group who commented on the programme as *challenging and changing their pedagogical perspectives and understandings*, either through the content of the PD programme, or, more often, through the opportunities it provided for sharing and critical discussion with colleagues, outside 'experts', and so on.

Examples of statements about challenging their pedagogical approach and understandings

- "it has provided me with a whole new approach and made me question the ways I have been teaching."
- "Has challenged me to extend these beliefs to action."
- "I am much more aware of need to vary teaching methods and am now looking for ways to make teaching and learning more interesting and comprehensive."
- "It has changed my attitude towards the use of information and accessibility."
- "It is a tool and can enhance student learning, [but] it should not be seen as a replacement for good pedagogical interaction with students."
- "**I now teach a lot differently. Using inquiry has become an important part of my NE programmes.**"
- "I have been able to attend several conferences which have given me a whole new concept of teaching and learning."
- "Now I understand how important student involvement in learning is."
- "My views about what low achievers can do has been challenged - great new opportunities with ICT."
- "I have relaxed control and allow them to make more independent decisions on how they use the tools."
- "It has changed the way I look at enquiry completely."

Teachers' classroom practices

When teachers were asked about the extent to which their classroom practices had changed as a result of participation in the ICT PD programme, a third of them indicated their classroom practices had changed to 'a large extent' or 'completely', and just under half of them (46%) said their classroom practices had changed 'to some extent'. Only a very small group (7%) said no change had occurred in their classroom practices at all (Table 8).

Table 8: Changes in teachers' classroom practices

Extent of change in classroom practices	%
Completely changed	4%
To a large extent	30%
To some extent	46%
Very little	15%
Not at all	5%
Total n=	2887

There were some demographic differences in teachers' response to this question. Female and primary teachers stated higher levels of change in their classroom practice than male and secondary teachers (Gender, $X^2=28.91$, $df=4$, $p<0.001$; School Sector, $X^2>35$, $df=4$, $p<0.001$). Whereas 38% of female and 46% of primary teachers indicated a complete or large change happened to their classroom practices, 26% of male and 19% of secondary teachers respectively indicated the same levels of change (Table 18). While the great majority (80%) of teachers reported at least some element of change in their classroom practices, secondary teachers were twice as likely as primary teachers to be in the 20% of teachers reporting little or no change in classroom practice.

Table 9: Changes in teachers' classroom practices by gender and sector

Levels of classroom practices change	Female	Male	Primary	Secondary
Completely changed	4%	2%	6%	1%
To a large extent	34%	24%	40%	18%
To some extent	45%	50%	41%	52%
Very little	13%	18%	10%	21%
Not at all	4%	6%	3%	7%
Total n=	1953	518	1589	1171

Teachers were also asked to state the positive and negative aspects of such changes in classroom practice when incorporating ICT-based activities into classroom programme.

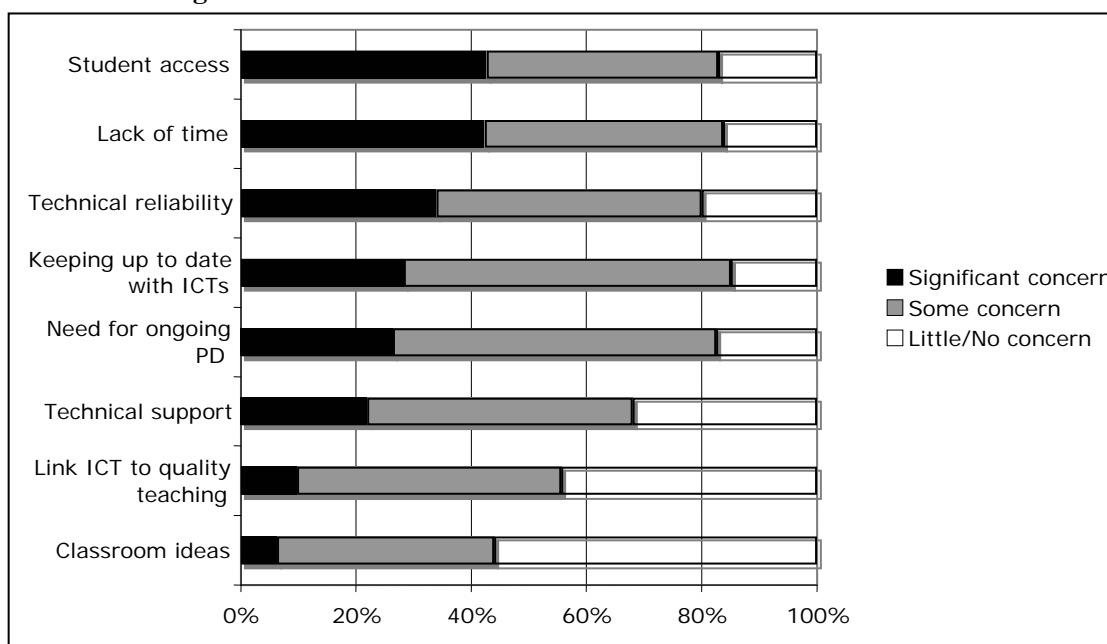
Consistent with their response to the question on the contribution to their understandings of teaching and learning, the main positive effects of integrating ICTs into classroom teaching mentioned by teachers related to such things as:

- teaching with more confidence and enthusiasm,
- making learning for students more engaging and interesting,
- enhancing/expanding their own teaching skill set,

- using a wider range of activities which cater to a greater range of student need, and
- facilitating better, or more efficient, curriculum learning.

Teachers also stated a number of negative effects of incorporating ICT based activities into classroom programme, most notably, frustration at a lack of equipment or unreliable ICTs, the longer set up times and preparation times for classes, increased responsibilities such as security and safety, and the need for a spare lesson plan in case of having an equipment failure. Indeed, technical issues, equipment reliability and inadequate access to equipment for students seemed to account for most of the perceived constraints on ICT use, these being much more significant in peoples' minds than pedagogical issues. Just under half of the teachers, for example, identified significant concerns about access to equipment for students (43%) and reliability, alongside lack of time (42%) for themselves to become familiar with the range of ICTs available as their main persisting concerns around the use of ICTs with students at the end of the programme (Figure 3). As has also been the case for the case for previous cohorts, many of the teachers at the end of the project felt there was still some need for continuing PD around ICT use, even though the programme had significantly increased and improved their effective practices in this regard.

Figure 3: Teachers' concerns about the use of ICTs with classes



Effects of the ICT PD Programme on Student Learning

The ICT PD clusters contracts identify two significant performance indicators related to the expected downstream student learning effects of the professional development:

1. Increased classroom usage of a range of ICTs by students, and
2. The provision of 'quality learning experiences' for students through ICT-based activities.

Increased classroom usage of a range of ICTs

One measure of this is the percentage of 'high usage' teachers (those who integrated ICT based activities into "all" or "most" of their units of work) at the beginning and end of the programme. In this cohort the proportion of 'high usage' teachers increased from 13% at the start for the programme to 46% at the end. Conversely, the proportion of teachers who did not integrate ICTs at all decreased from 20% to 3% (Table 10).

Table 10: The proportion of units of work in which ICTs were incorporated before and after ICT PD

	% of teachers before the programme	% of teachers after the programme
All or almost all units	4%	16%
Most units	9%	30%
Several units	20%	30%
One or two units	45%	15%
No units	20%	3%

'Low/No usage' = ICTs incorporated into 'no' or 'one or two' units of work in the year before ICT PD

'High usage' = ICTs incorporated into 'most' or 'all' units of work in the year before ICT PD

The increase in the frequency of usage of ICTs with classes over time was correlated with sector, confidence and length of time in the programme. In particular, primary teachers increased their classroom usage significantly more than secondary teachers. At the end of the programme well over half of primary teachers were using ICTs in most or all of their units of work, compared with just over a third of secondary teachers. Those who had been in the programme longer also tended to report use of ICTs in a higher proportion of units than those in the programme for shorter periods.

The ICTs (hardware/software) being used most frequently by students at the end of the programme were Word Processing (40% of ICT activities reported involved Word Processing), Scanning/Digital Camera use (27%), the Internet (29%) and Slideshow applications (23%) (Table 11).

Table 11: Proportion of students' ICT activities involving particular ICTs

(NB: numbers add up to more than 100 because more than one ICT may be involved in any one activity)

ICT (Hardware/Software)	% of activities
(WP) Word Processor	40%
WWW Internet	29%
Scan/Digital camera	27%
Slideshow presentation	23%
Graphics	10%
SS (Spreadsheet)	10%
CD Rom	8%
Movie/Animation editing	6%
Simulation/Problem solving/Data Logging	6%
D+P / Tutorial	6%
Mindmap	3%
Music editing	2%
Web authoring	2%
E-mail & telecommunications	1%
Database	1%

In sum, then, students in the ICT PD cluster classrooms used a relatively small, but for most, increasing, range of ICTs during the programme, and they used them much more often than they had prior to the programme.

The provision of 'quality learning experiences' for students

Although the provision of 'quality learning experiences' through ICT-based activities was an expected outcome of the ICT PD programme, the definition of what might constitute a 'quality' experience in this regard was left largely up to the cluster teachers and their facilitators to define. In the various surveys, therefore, we asked teachers to identify the specific learning activities their students had taken part in during the PD programme, the Essential Learning Areas covered by these activities, and the specific *student learning outcomes* they expected from or observed during those activities. These observed learning outcomes provide a window into what the teachers saw as the 'quality learning experiences' using ICTs provided during the programme.

A qualitative analysis of data from previous cohorts surveys (Ham et al. 2006) has suggested that, in teachers' minds at least, the learning *outcomes* most often demonstrated when students use ICTs can be grouped into four main categories:

- Student motivation and engagement.
- Generic thinking skills.
- Generic social skills
- Specific curriculum content knowledge and objectives.

The 2004 cohort's identification of these learning outcomes is outlined below under these key categories.

- High levels of **student motivation and engagement** with learning tasks. Often this was expressed as a consequence of ICT activities being more conducive to individual student work, or as a heightened 'interest' effect of the greater variety of activities that students were engaging in as they undertook new ICT based activities during the programme.

Examples of outcomes related to student motivation and engagement

- "Increased enthusiasm & participation in learning"
- "Children are *motivated*"
- "Provides *impact* and variety"
- "Students are *more engaged* in the lesson."
- "*Motivated* and appreciation of high standards"
- "Skill of camera use, *motivation* for writing."
- "*Engagement*, strategy building"
- "Forces and *motivation*"
- "*More overall interest*, learning more diverse"

A numerical analysis of Question 8 data shows that the routine involvement of students in ICT activities with motivation/engagement learning outcomes more than doubled over the period of the programme (Table 12).

Table 12: Proportion of teachers reporting frequent use of ICTs in classrooms for motivation/engagement outcomes before and after the ICT PD programme

Activity focus	Frequency			
	Time	High frequency (Avg weekly or daily)	Moderate frequency (Avg once a term)	Low frequency (Not at all or once or twice per year)
Motivation/Reward/ Engagement	Before ICT PD	11%	13%	75%
	After ICT PD	27%	20%	53%

- The acquisition and demonstration of a range of **generic thinking skills**.

For many teachers, these generic abilities include ICT skills themselves. However, more importantly, and for more teachers, they take the forms of communication skills, higher order thinking problem solving, and creativity skills. Such cognitive skills and abilities were the most frequently reported learning outcomes and benefits from students' use of ICTs in classes.

Examples of 'learning outcomes' related to generic cognitive skills and abilities

- "Students used ICT as a tool for learning, thinking, & creating"
- "Speed in grasping new concepts."
- "Able to analyse diets and recipes in depth."
- "Assessment - shows understanding of light & lenses."
- "Able to use their Chinese language skills."
- "Research for their specific inquiry topic."
- "Show how to resolve conflict with photos/images."
- "Analysing movements and skills."
- "Finding information and applying processes."
- "Able to sequence the main ideas of a story."
- "Access to variety of genre."
- "Able to sequence the main ideas of a story."
- "Critical thinking - justifying opinions."
- "Creating Kowhaiwhai using rotation, translation and symmetry."
- "Creative placement of self in camp context."
- "Fact finding."
- "Extended their Maori vocabulary and sentence structure."
- "Finding the answer to an inquiry question and presenting it"
- "Extracting quality information from Internet without plagiarizing."
- "Learning sign language in order to communicate."
- "Learning to ask Inquiry questions (as opposed to statements.)"
- "Visual presentations to reinforce the functions of the digestive system."
- "Visual record of experiments to better recall research."

Communication skills

The use of ICTs such as faxes and emails for topic related communication, for example with experts outside the classroom, did not increase dramatically over the period of the programme, though we note that the proportion of teachers whose students had ‘never’ engaged in these activities did reduce from 72% of teachers to 46%. The proportion that reported regular student use for this purpose several times a term increased from 5% to 18%, but neither of these became daily or weekly occurrences in the majority of teachers’ classes by the end of the programme (Table 13).

By contrast, though, the majority of teachers were using ICTs quite regularly for other communication activities by the end of the programme, notably by way of presentations of their work to teacher or peers. By the end of the programme the proportion of those whose students had ‘never’ or ‘rarely’ used ICTs for multimedia presentations had decreased from 84% to 45%. Conversely, by the end of the programme the students of just over half of the teachers were engaging in this at least several times a year or several times a term. Student use of ICTs for static print presentation had been rather more common prior to the programme, but this too increased over the period of the programme. By the final year of ICT PD the students of over a third of teachers were using ICTs for static print presentations on a very routine (weekly or better) basis, and about three quarters on a regular (termly or better) basis.

In all three aspects of ICT use for communication skills, primary students were likely to be involved in these activities more regularly than secondary students.

Table 13: Frequency of students’ engagement in ICT based activities connected to communications skills, before and after the programme

Classroom activity	Frequency	High frequency (Avg weekly or daily)	Moderate frequency (Avg once a term)	Low frequency (Not at all or once or twice per year)
	Time			
Static print production / presentation	Before	10%	23%	66%
	After	34%	39%	27%
Multimedia presentation	Before	3%	12%	84%
	After	18%	37%	45%
‘Online’ interaction with others (email, fax etc)	Before	5%	7%	88%
	After	18%	18%	65%

Information Processing skills

As had been the case with previous cohorts, the increase in regular student use of ICTs was most dramatic in relation to searching for, gathering or processing information, especially from the Internet. Teachers reported a significant increase in students’ regular engagement in such activities over the programme. For example, 62% of teachers reported that their students had never or only rarely accessed or searched for information on the Internet before the programme. After the programme this proportion had declined to 21%. At the other end, routine use of the Internet and other ICTs for information gathering increased dramatically. The percentage of teachers reporting very routine (daily or weekly) engagement of students in Internet based information searches more than tripled from 14% to 47% (Table 14). By the end of the programme the students of four fifths (80%) of the teachers in the programme were using ICTs for information processing on a regular (termly) or routine (weekly or daily) basis (Table 14).

Primary students were more likely to be involved in using ICTs for information processing more regularly than secondary students.

Table 14: Students' engagement in ICT-based activities related to a variety of cognitive skills before and after the programme

Classroom activity	Frequency Time	High frequency (Avg weekly or daily)	Moderate frequency (Avg once a term)	Low frequency (Not at all or once or twice per year)
	Creativity	Before	6%	9%
After		19%	24%	57%
Information gathering/processing	Before	14%	24%	62%
	After	47%	33%	21%
Higher Order Thinking, problem solving etc.	Before	4%	9%	87%
	After	13%	21%	66%
Curriculum content	Before	10%	13%	77%
	After	32%	26%	43%
Technical skills	Before	12%	16%	72%
	After	40%	27%	33%
Collaborative learning and social interaction	Before	3%	9%	88%
	After	15%	18%	68%

Higher Order and Critical Thinking skills

As can also be seen in Table 14, when teachers were asked about ICT activities associated with higher order thinking skills such as problem solving or synthesis and evaluation, the results show that the proportion of 'regular' and 'routine' users of ICTs for these outcomes also doubled over the period. However, such increases were less than those noted for information gathering and were lower also than those reported for communications and creativity-based activities. This was also the cognitive outcomes area in which secondary students engaged with ICTs as regularly as primary students, reflecting perhaps a relatively higher use of simulation software, spreadsheets, data loggers and the like, which are often associated with such problem solving activities.

Curriculum content

Reflecting perhaps many teachers' view that the use of ICTs had increased the individualisation of learning, there was also an increase in the frequency of students' use of ICTs for reinforcement of content knowledge, practice at rule application and concept learning through the use of drill and practice, educational games, tutoring software and the like. Again, the proportion of teachers' whose classes had rarely or never used these technologies for these purposes reduced noticeably over the programme, and conversely the proportion of teachers who reported daily or weekly student engagement in such classroom activities increased. By the end of the programme about a third of teachers, and proportionally more primary than secondary teachers, were reporting routine (weekly or daily) use of ICTs for curriculum practice of this type.

Creativity

In relation to ICT activities connected to creativity the proportion of low frequency-users of ICTs for creative activity halved over the period, from 85% to 57%. Conversely, the proportion of routine users

increased from 6% to 19%. The greatest student use of ICTs for creative activities were in the 'regular' (termly) rather than 'routine' (weekly/daily) categories. Proportionally more primary teachers also used ICTs with students for creative activities than secondary teachers. This possibly reflects the relatively greater role of activities such as 'creative writing' and 'story telling' in the primary sector.

Note: ICT skills as a learning outcome

Interestingly, and as had also been the case with previous cohorts, a significant proportion of identified learning outcomes of ICT use, and a significant amount of regular use of ICTs by students, related to student acquisition of ICT skills per se. The tendency to view technical skills acquisition as a primary and legitimated outcome for computer based learning activities was especially strong amongst primary teachers, about half of whom reported that they routinely used ICTs for such a purpose at the end of the programme (cf. 24% of secondary teachers).

As noted in the report on the 2003 cohort (Ham et al 2006), this is perhaps testimony to the notion held by many teachers that pre-taught technical skills are a prerequisite for effective learning activity with ICTs, even as the focus of the PD itself moved towards pedagogical and learning issues. It also perhaps reflects the view that technical skills themselves are a legitimate outcome of students' experience at school, along with curriculum knowledge, cognitive skills and other benefits. Teachers often see the role of technical skill acquisition through ICT use not just as preparation for further school lessons. It is also a part of a wider function of preparing the students for a technologically permeated future. ICT skills seem very much seen as useful 'life skills' and part of a necessary preparation for functioning in 21st Century society.

There were no statistically significant sector differences in relation to increased student use of ICTs for higher order thinking and critical thinking skills, but primary teachers reported significantly more frequent use of ICTs with classes for all the other cognitive and social outcomes measured. Primary students were more likely than secondary students to be involved in the regular use of ICTs for creative activity, for curriculum content acquisition, and for information gathering or processing. They were also more likely to be regularly given ICT related tasks aimed primarily at increasing motivation and at gaining technical skills.

Examples of identified learning outcomes related to acquiring technical skills

- "able to use and search, cut and paste from internet to word documents"
- "Manipulation of numbers and working of Excel."
- "Creating graphs in Excel"
- "Greater understanding of the technology"
- "Technical photography skills"
- "Understanding graphics"
- "Putting their name on a computer template - changing font, colour."
- "Becoming confident with a camera"
- "Text and image. Labeling diagrams"
- "Basic word processing skills"
- "Giving them the skills they need for the future"
- "a good way to practice life skills (typing etc)"
- "Basic typing skills"
- "basic skills increased (eg keyboarding word)"
- "Better mouse skills"
- "Children will be able to transfer ICT skills easier"
- "Preparing them for tech. advancements they will encounter in the future."

Generic social skills

The frequency of student engagement in ICT based activities related to collaborative learning, social interaction, and a sense of being part of a learning community, such as working in groups to solve a problem, collaborating on DTP projects etc, also increased over the period of the programme. Over two thirds (70%) of teachers said their students had never engaged in ICT based activities connected to collaborative learning and social interaction during the year prior to the programme. At the end of the programme this had reduced to 52%. The proportion of teachers who reported high levels (daily or once/twice a week) of their students' engagement in collaborative ICT based activities increased from 3% to 11%. Again, the bulk of the proportional increase seems to have occurred from the non-use or rare use categories to those of occasional or regular use.

Examples of 'learning outcomes' related to generic social skills / being part of learning community

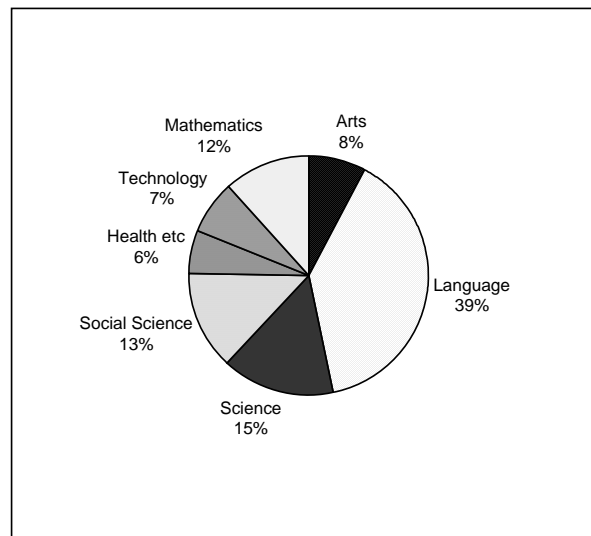
- "Meeting other students in another school."
- "Sharing their learning journey through reporting back."
- "Communicate/form relationships with other schools."
- "Sharing their creativity."
- "Co-operation between students to aid learning."
- "Working with a buddy."
- "co-operative skills-working in a group."
- "Group work on ICT is beneficial as all understand."
- "Sharing and teaching skills to others"
- "They relate well in a multimedia environment."
- "Sharing an interest in ICT based activities which attributes to further learning."
- "Sharing of skills between students."

Possibly reflecting the tendency for secondary students to work in computer laboratories where there is often one computer per student and for primary students to have access to one or a small number of computers in their regular classrooms, primary students were more likely to be involved in regular collaborative use of ICTs than secondary students.

Curriculum Objectives: Essential Learning Areas in which students used ICTs

The largest proportion of ICT-based student activities reported by teachers related to the Languages Essential Learning Area (39%), followed by Science (15%), Social Studies (13%), and Mathematics (12%) (Figure 4, below).

Figure 4: Students' use of ICTs in different Essential Learning Areas



Participant Evaluations of the Programme

The final major performance objective of the ICT PD cluster contracts addressed in the surveys was the objective to provide “appropriate advice, PD and support” to teachers. This was to be indicated by high levels of participant satisfaction with the PD programmes offered in the various clusters, so several questions were included in the survey to gather data on this objective.

Teacher satisfaction with the programme

Generally, teachers indicated high levels of satisfaction with their programme in relation to meeting their goals, and, even though some 40% of teachers entered the programme stating that ICTs were a low PD priority for them, the great majority felt it had been a positive force in their recent development as teachers.

Substantial majorities of the participating teachers indicated that their goals had been met to a large extent or better. Overall, about a quarter of teachers felt their goals had been fully met or exceeded, and about 40% felt their goals had been largely met. About 6% of teachers felt their goals had not been met, the majority of these being secondary teachers.

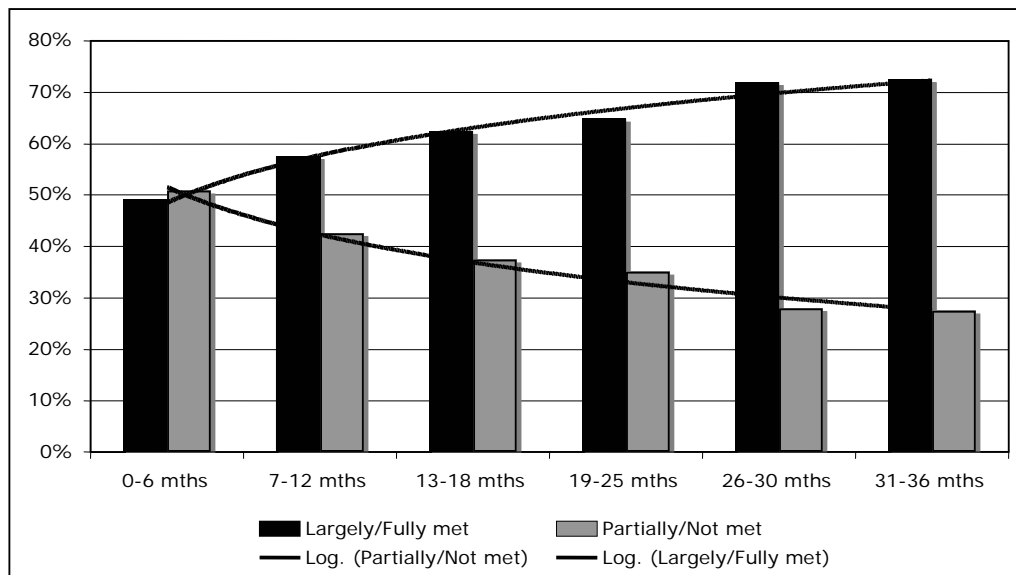
Teachers were asked about three kinds of goals: technical skills, practical ideas for classroom uses of ICTs, and improved quality in teaching and learning. The highest levels of goal achievement was in relation to acquiring practical ideas for using ICTs with classes, but the margins were not statistically significant across the three types of goals. For all three goal types, just on two thirds of the teachers said that these goals had been largely met, fully met or exceeded (Table 15).

Table 15: Levels of ICT PD goal achievement reported by teachers

Goal Level of achievement	Technical skills	Classroom ideas	Quality of teaching and learning
Exceeded	4%	8%	7%
Fully met	17%	22%	20%
Largely met	42%	40%	40%
Partially met	31%	25%	27%
Not met	6%	4%	6%
N	2179	1910	1992

There was a noticeable difference between primary and secondary teachers in terms of levels of goal achievement. For all three goal types, but especially for goals related to improving teaching and learning generally, primary teachers reported higher achievement levels than secondary teachers. This could reflect a differential in quality or focus in primary and secondary clusters, but is more likely to reflect a difference in the goal profiles of the two groups, or possibly that secondary teachers are simply ‘harder to please’. It may also reflect the generally higher entry point levels of (self-) confidence and skill reported at the beginning of the programme by secondary teachers.

Figure 5: Proportions of teachers reporting extent to which their goals/expectations of the ICT PD programme had been met, by length of time in the programme (with trendlines)

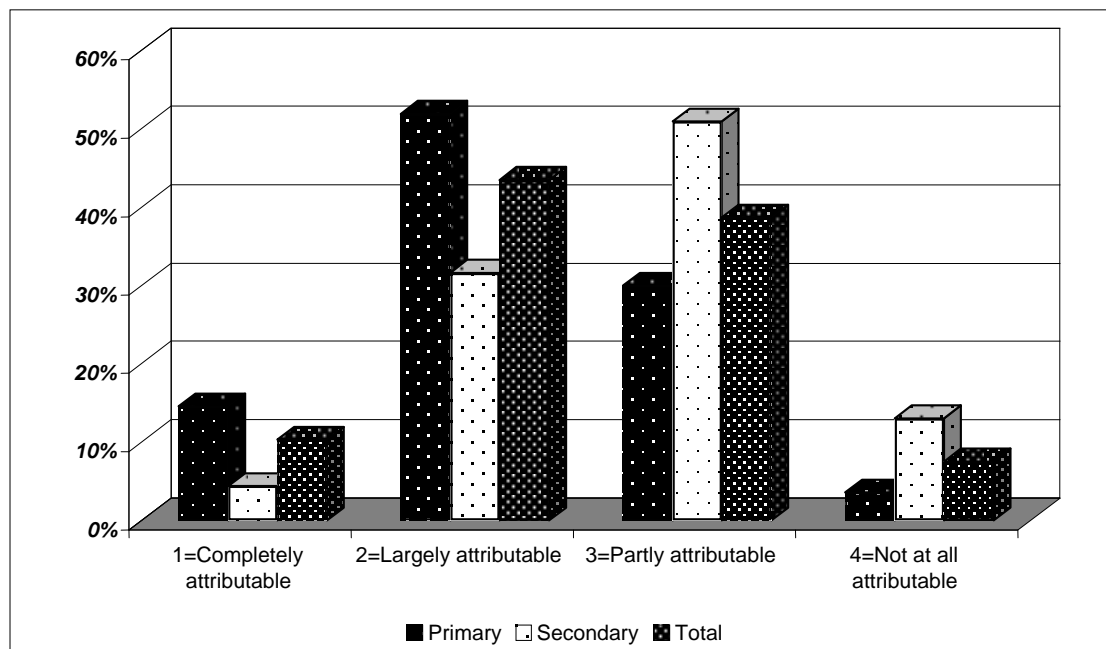


As has been found in relation to many other effects of the ICT PD programmes, there was a significant correlation between the length of time individuals were involved in the programme and their level of goal achievement. Across all three goal types, and for both sectors, the longer the period of involvement, the higher the levels of goal achievement. Figure 5 shows this relationship between satisfaction with programme and length of involvement. In the first six months the proportions of teachers largely/fully satisfied and those only partially or not satisfied are virtually equal. By the end of the three years twice as many were largely/fully satisfied their goals had been met as felt they had only partially or not been met.

The ICT PD programme's contribution to teachers' increased ICT usage

Teachers were asked directly about the extent to which their increased use of ICTs with classes over the three years of the programme were directly attributable to the programme. The great majority of teachers (92%) indicated that the increase in their ICT usage was attributed either largely or partly to the ICT PD programme. Some 53% said that their increased use of ICTs with classes was either largely or completely attributable to the programme (Figure 6). Again, there were some within-group sector differences in that primary teachers were more likely to attribute increased ICT use with classes to the programme than secondary teachers.

Figure 6: The extent to which increased use of ICTs with classes is attributable to the ICT PD programme



In a triangulating question, teachers were asked how significant the programme had been in contributing to their overall development as professionals. If anything they were more positive on this than they had been in the question about attribution to usage, a similarly small minority (8%) said it had not been significant to their overall development. But a rather larger proportion of two thirds (63%) of teachers indicated that the programme had been either significant or very significant as a factor in their overall development as teachers. Again, primary teachers were more likely than secondary teachers to attribute general professional significance to the programme.

Teachers' opinions on various aspects of the ICT PD programme

Since each of the clusters implemented their own programme there was no clear 'model' that seemed more successful than others. However, when teachers were asked to comment on the particular aspects of their particular programmes that they most and least appreciated, they often commented on similar issues. The feedback in relation to the most and least appreciated aspects are summarised in the exemplary statements in the boxes below, categorised by:

- programme content,
- programme facilitation and other leadership
- programme delivery, and
- the raft of broader developmental opportunities that accompanied the programme, beyond just 'school' or 'cluster' events.

Statements by teachers about the *content* of their ICT PD programmes and their particular cluster models centred around learning new technical skills; gathering and sharing practical ideas for ICT integration into classroom curriculum programmes; and learning about principles of effective teaching and learning in general.

Examples of statements around programme content**Skills as content**

- “Has been a wonderful opportunity to become upskilled with current ICT developments which have a direct bearing on my overall professional development and skill in delivering up to date resources to RTLB students.”
- “Furthered skills in some multi media.”
- “Development in movie making skills.”
- “Learning about a range of programmes and technical skills required to use them.”

Classroom Curriculum Ideas as content

- “The programme has ensured we maintained and *focus on integrating ict in many diff ways*, into curriculum delivery and has enhanced sharing of ideas.”
- “Am very excited with *learning how to implement ICT's* into my teaching - there is too much content though. It's very difficult to keep up with the pace.”
- “Great learning *new ideas* for classes.”
- “Classroom strategies.”
- “The different *ideas on how to incorporate* into classroom practice.”

Teaching and Learning as content

- “This has changed my whole out look on how ict/pd helps one and my teaching this to my class.”
- “largely related to having focus related thinking strategies + increased understanding.”
- “Allowed me to elicit a higher level/more creative responses from children in their learning.”
- “Absolutely essential! Most valuable PD done ever in 11 years. Has helped to bring me into the information age in a gentle, non threatening way to the extent that I an excited about what we can do next!”
- “Although my ratings look low, I think my thinking has undergone a change, a slow change.”
- “As a principal it has been very significant due to the impact it has had on pedagogy. It has changed the whole art of delivery with teaching and learning.”

Examples of comments on the importance of facilitation and other leadership

- “Effective willing ICT facilitator.”
- “Seeing what is possible and the wonderful facilitations skills of the cluster facilitator.”
- “Great facilitators, fantastic support, great ideas. I enjoyed being apart of this ICT PD cluster programme.”
- “Great teacher; fantastic ideas!”
- “Regular training at school with specialists.”
- “Ongoing cheerful help from XXX.”
- “Continued PD and support from both lead teachers and facilitator.”
- “The workshop with XXX was fantastic!”
- “Support from facilitator – awesome. XXX has supported us with knowledge, expertise and time.”
- “Support from ICT PD school leaders, their willingness to spend time, their patience, excellent suggestions, without pressure, their expertise, their patience, their knowledge.”
- “Support in completing ICT PD Diplomas. Encouragement to present at national / international conferences.”
- “The support & encouragement given me individually & the attitude of ‘give it a go.’”
- “The lack of leadership available to guide us into the “where to next””
- “Attitude of proficient leaders - Not there to teach basic as already” done!

Many of the comments highlighted the pivotal role of able, knowledgeable and professionally skilled facilitators. Teachers required their facilitators to be technologically and pedagogically knowledgeable, willing to adopt a supportive, empathetic attitude, and always ‘available’.

The aspects of programme delivery appreciated most were the personalized attention many facilitators were able to build into their programmes, small group sessions, one to one help, in-classroom visits, arranged visits among schools, and practical (i.e.: hands on and/or interactive) workshops.

The final aspect of the programmes often commented on were the various opportunities that accompanied the programmes to share learning and experiences both within and beyond the cluster, and the contribution these made to developing a ‘community of practice’ around the programme. Most prominent among these opportunities were the national conferences, outside/overseas visitors

and experts, meeting other teachers from other schools, and sharing expertise and knowledge with colleagues through various ‘celebrations’ and events both within and outside the cluster context.

Examples of comments about programme opportunities for sharing, celebrating and presenting

- “Interschool collaboration, & sharing of resources”
- “Peer support, collegial support, QLC’s, the opportunity to go to U-Learn, around the world in 80 days”
- “Seeing what other schools in the cluster are doing. The communication between schools, sharing of ideas and resources new ideas“
- “The conferences: I-school, He waka eka noa”
- “Cross cluster sharing/co-operation, working with other principals.”
- “Conference-Ulearn-huge learning and opportunities”
- “Ability to register for Ulearn, planning and preparing for learning celebrations”
- “**Jumbo cluster days**”
- “Knowledge shared by lead teacher in our school plus meeting with other primary teachers”
- “The interaction with cluster schools via quality learning circles”

In terms of suggestions for improvement of the programmes, the most often identified suggestions related to:

- giving more time for teachers to practice what they have learnt,
- continuing the PD opportunity after the contract period,
- providing greater variety of subject based sessions,
- increasing the opportunity for one-to-one support from facilitators,
- tailoring the PD to the needs of individuals or doing more effective needs analysis
- improving technical support in schools to avoid ICT failure, and
- improving student access to computers and software.

Most of these paralleled the concerns about integrating ICTs discussed in an earlier section.

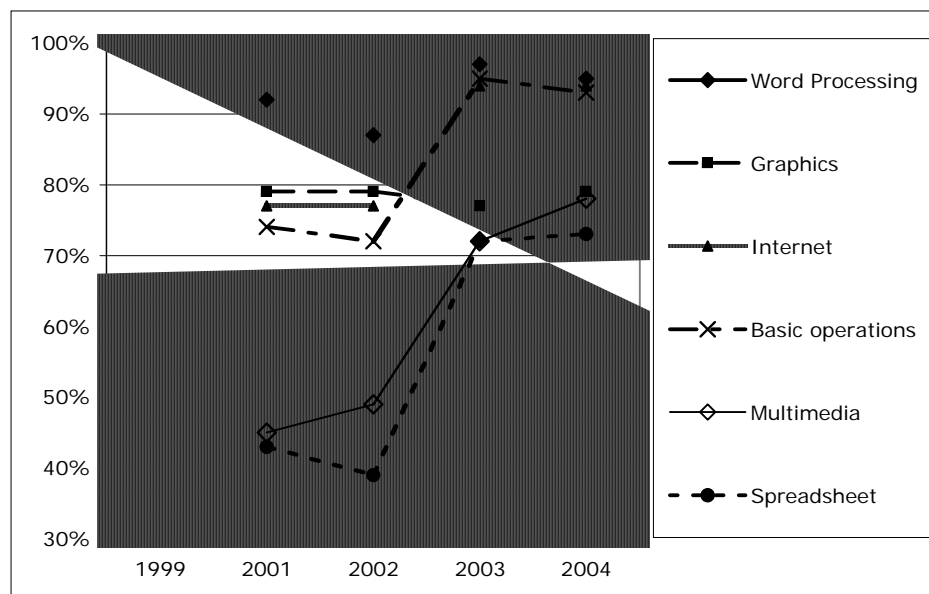
Comparisons with Previous Cluster Cohorts

Teacher skills

The reported increases in skill levels over all five of the ICT PD programmes that have been completed to date were considerable for all cohorts, especially for female and for primary teachers.

Similar proportions of teachers in the 2001 and 2002 cohorts reported 'moderate' or 'high' skill levels at the end of their programmes. However, a noticeably higher proportion of the 2003 and 2004 cohorts reported such levels, except in the case of graphics skills, which have remained relatively static across all cohorts (Figure 7).

Figure 7: Proportion of teachers reporting moderate/high skill levels at the end of ICT PD programmes, across a range of ICT skills, 2001-2004 cohorts



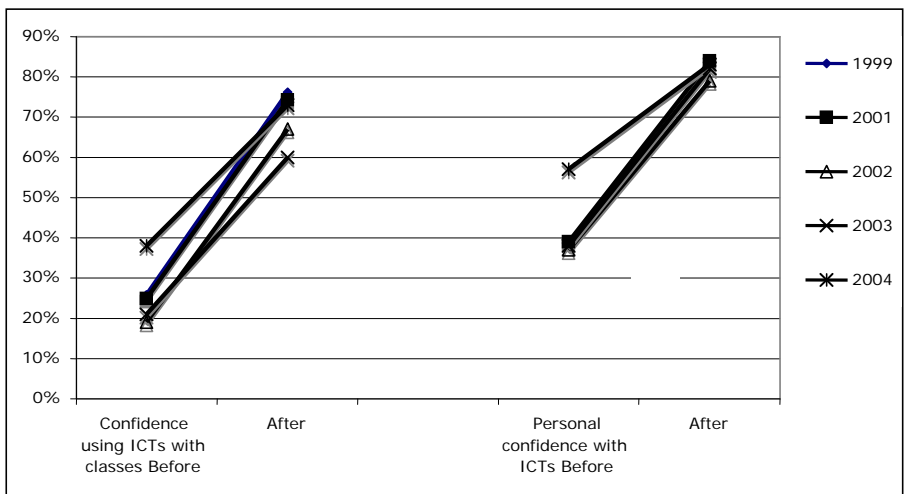
Reported *gains* in ICT skills during the programme, however, seem greater in the earlier cohorts than in the two most recent cohorts. This may be partly explained by increasing entry level skills among each successive cohort, and partly perhaps by the relatively higher proportions of secondary teachers in the 2003 and, to a lesser extent, 2004 cohorts (secondary teachers consistently report higher skill levels than primary teachers in all of the surveys). The proportions achieving high level skills across the full range of ICTs are nevertheless significantly higher in the latter two cohorts, so other factors may well be at play as well as the ICT PD programme itself. One such factor may be the effect of the laptop scheme, which was 'rolled out' during the 2003 and 2004 cohorts' programmes. The fact that end-of-project skills were similar for both the 2003 and 2004 cohorts would also support this conclusion.

The particular skill areas where the greatest and lowest gains in competence were reported over the period of the 2004 cohort programme, were similar to those reported by both earlier cohorts.

Teacher confidence

For all cohorts, reported *increases* in confidence as a consequence of the ICTPD programmes have been significant, both with regard to teachers’ personal confidence with ICTs and their confidence about student use of ICTs in their classes (Figure 8). Large proportions of teachers from all cohorts have reported moderate and high levels of confidence about ICT usage at the end of the programme. The relative increases in classroom confidence are significant for all cohorts but do seem to be slightly decreasing in magnitude over time, perhaps reflecting the ever increasing range of ICTs available to teachers and a growing awareness through the programme of the complexity of pedagogical issues surrounding effective assimilation of ICT use with improved teaching and learning.

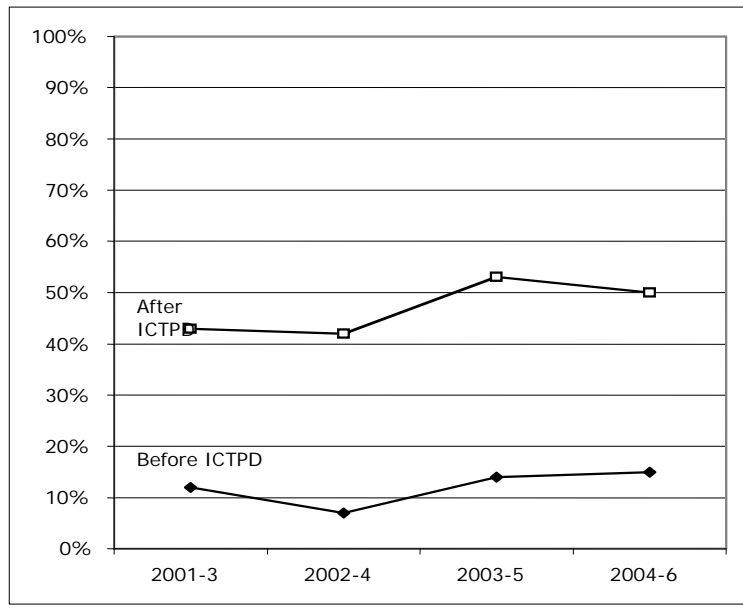
Figure 8: Proportions of teachers reporting moderate to high levels of confidence with ICTs before and after ICT PD programmes, 1999-2004 cohorts



Increased classroom usage

Figure 9: Proportion of teachers whose students regularly* used ICTs for classwork before and after the ICT PD programme, 2001-2006

(*i.e.: ICTS were incorporated in 'all' or 'most' of their units of work over the previous year.



The extent to which teachers integrated ICT-based activities in ICT PD cluster classes increased significantly from quite low entry points, and to similar extents, for all four cluster cohorts for which there is comparable data. The 2003 and 2004 cohorts were the first in which half or more of teachers at the end of the programme were routinely incorporating ICTs into ‘most’ or ‘all’ of student units of work.

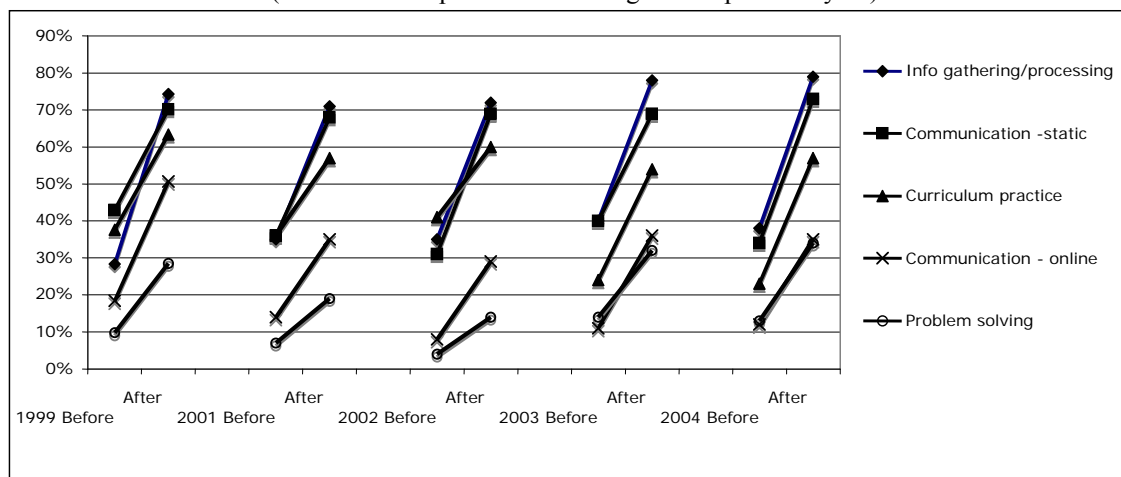
Student learning activities

On those indicators where direct cross-cohort comparison is possible, there seem few significant differences among cohorts with regard to the types of learning outcomes reported for classroom use of ICTs, or in the reported increases of such use over the period of the programmes.

It is noted that entry point student use of ICTs for online communication (mostly emailing) has decreased over time, but that exit levels of such use have stayed stable since 2002. Student use of ICTs for information processing (predominantly Internet use) continues to show the greatest increases across the cohorts. Use of ICTs for problem solving activities, reported previously as declining from 1999 to 2002 cohorts, is still comparatively low, but has recovered to earlier levels in the 2003 and 2004 cohorts. Most of this ‘problem solving’ use is explained by student use of spreadsheets, data loggers and the like, in the 2003 and 2004 cohorts. Similarly, *post*-programme routine use of ICTs for curriculum practice (Drill & Practice, computerised tutorials, multimedia books etc) declines from 1999-2004 but this is because the latter cohorts reported less *pre*-programme usage. The *increases* made during the programmes in were similarly large for all cohorts. Student use of multimedia production tools for presentation (part of ‘static communication’ in Figure 10) continues to be a feature of the cohorts, especially in primary schools. Increases in student use of ICTs for other categories of learning outcome seem to be quite stable across cohorts.

Figure 10: Proportions of teachers’ reporting frequent* classroom usage of ICTs for various learning outcomes, before and after the ICT PD programme, 1999-2006

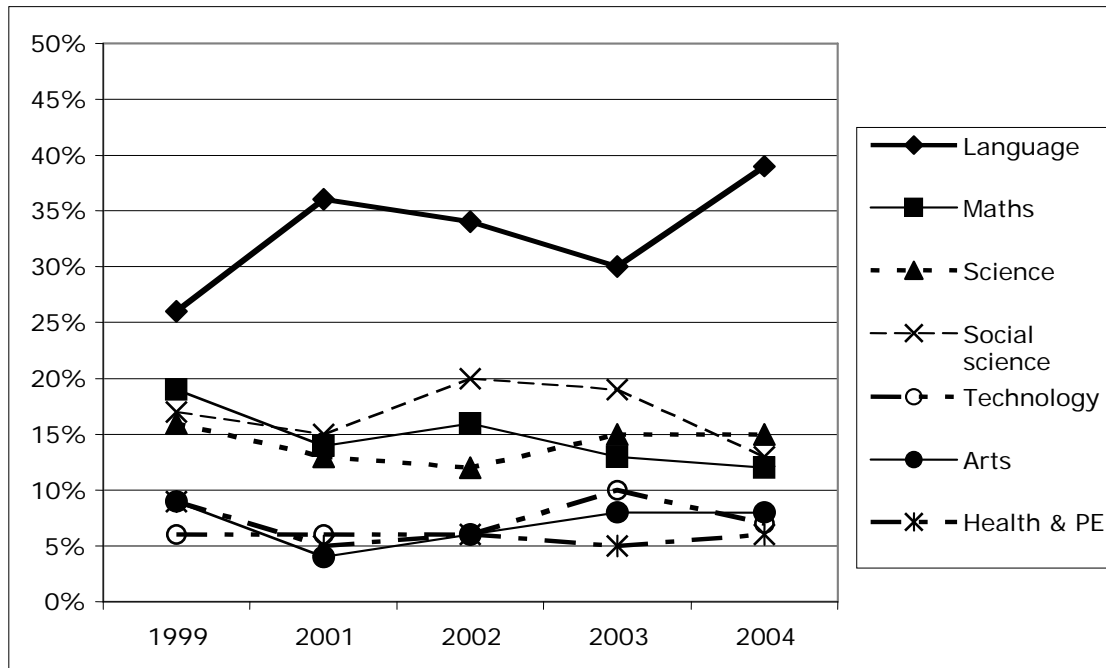
(*At least once per term on average in the previous year)



The distribution of student usage across Essential Learning Areas at the end of projects shows few clear trends across the cohorts, except perhaps for the continued predominance of ICT use for Language objectives and a slight decline in the proportion of ICT activities for Mathematics and Social Studies. Language activities account for the highest proportion of classroom ICT activities in

all cohorts. The proportion of activities in the Language area increased noticeably between the 2003 and 2004 cohorts, apparently at the expense of Social Studies and Mathematics activities (Figure 11).

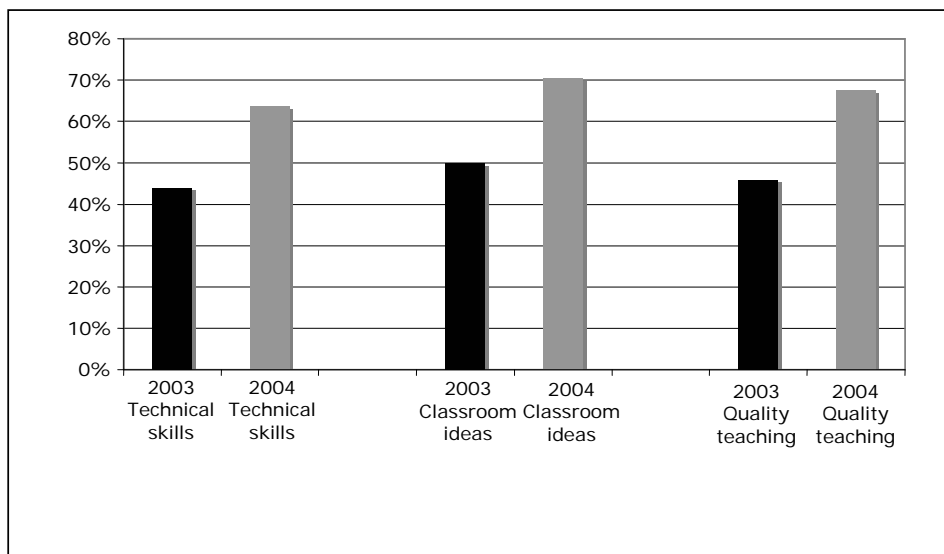
Figure 11: Proportion of ICT activities by Essential Learning Area, 1999-2004 cohorts



Participant satisfaction with programme

Finally, we note that levels of goal achievement and expectations met were significantly higher for the 2004 cohort than for the earlier 2003 cohort, across all of the groups of goal identified. Since there was also a significant sector difference in this regard in both cohorts, we attribute the difference to the fact that there were proportionally more secondary teachers, and more teachers for whom ICTs were a low priority on entry in the 2003 cohort. Both these groups tend to report lower end-point satisfaction levels.

Figure 12: Proportions of teachers reporting their PD goals were ‘largely met’, ‘fully met’ or ‘exceeded’



For all clusters that were asked this question, participant satisfaction varied by both sector and length of time in the programme, with both primary teachers and those in the programme for longer stating higher levels of satisfaction and goal achievement than secondary and those in the programme for only a few months.

Conclusion

The overall conclusion arising from the study is that the 2004-2006 ICT PD programme had a marked and significant effect on the teachers and students in cluster schools with respect to all of its key goals. There were high levels of goal achievement reported by participants, and marked increases or changes with respect to all of the Ministry's objectives as outlined in cluster performance agreements.

At the national level, the programme seems to have very much achieved its overall goals of increasing teachers' skills and confidence with ICTs, improving teachers' understandings of the educative purposes of using ICTs in teaching and learning, increasing classroom usage of ICTs, and providing quality ICT-mediated learning experiences for students. While stating these as general effects on the population of cluster teachers and classrooms as a whole, we note that, at a national level, the ICT PD programme continues to have a greater impact among primary teachers than among secondary teachers, and a greater impact among those who take part for the majority of the duration of the three-year programme.

References

- Ham V, Toubat H. & Williamson-Leadley S. (2006) National Trends in the ICT PD School Clusters Programme 2003-2005. A Report to the New Zealand Ministry of Education. Wellington. Ministry of Education
- Ham V. Graham F. & Toubat H. (2004) National Trends in Teacher Participation in ICT PD Cluster Programmes, 1999-2004: Results from the Baseline Surveys. Unpublished. Wellington. Ministry of Education.

APPENDICES

- Appendix 1. Performance Measures for ICT PD Clusters 2004-6
- Appendix 2. Baseline Survey Questionnaire, 2004
- Appendix 3. End of Project Survey Questionnaire, 2006

Appendix 1

Performance Measures for ICT PD Clusters 2004-6

<i>Intended Outcomes</i>	<i>Success Criteria/Evidence</i>
Teachers' confidence and skills in using ICT have increased	<p>Surveys show participating teachers have increased confidence and skills in using ICT</p> <p>Instances of teachers using material from MOE web sites including TKI</p>
Increased capability of teachers and principals to use ICT for their own professional learning and to facilitate improvements in students' learning, engagement and achievement	<p>Surveys show improved understandings of the role of ICT among most participants</p> <p>Instances of teachers aligning ICT use with student learning</p> <p>Instances of teaching using ICT that facilitate the learning of diverse students and raise achievement for all learners</p>
<p>Strengthened professional learning communities and increased collaboration within and across schools</p> <p>Development of a rigorous professional learning community focused on critical reflection of practice using ICT</p> <p>Developing rich resource of expertise, experience and materials in effective ICT use at a national and local level</p>	<p>Evidence of participation and contribution from participating teachers and principals to local, regional and national conferences, the online learning network and cluster network communities</p> <p>Instances of discussions within and between schools, focused on student achievement and changing teaching practice</p> <p>Instances of information, strategies and resources contributed to:</p> <ul style="list-style-type: none"> • Te Kete Ipurangi • Publications • And other relevant environments

Appendix 2

QuickTime™ and
GIF decompress
are needed to see t



ULTRALAB
Design • Support • Training

Information and Communication Technologies **2004-2006 Cluster Schools** **ICT Professional Development Project**

Baseline Data Survey

This questionnaire is designed to assist Facilitators with the planning of appropriately targeted professional development, and to contribute to independent research into the ICTPD School Cluster project. Individual responses will be kept strictly confidential to the cluster Facilitator and a Research team contracted to the Ministry, though the results of statistical and other analyses of the data may be published in non-attributable and aggregated form.

The survey is in 6 Parts. Please complete the relevant sections of all PARTS.

PART 1. Demographics

PART 2. Professional Development & ICT

PART 3. Views on ICT in Education

PART 4. Current ICT Skills & Abilities

PART 5. Current use of ICT for Planning, Preparation, Administration etc

PART 6. Current Use of ICT with/by Students

PART 1: DEMOGRAPHICS

Cluster Name or Lead School: _____

Your Name: _____

School: _____

Current position(s) of responsibility: _____
(DP, HOD, Syndicate Leader etc etc)

No. years teaching experience: 0-2 yrs 3-5 yrs 6-10 yrs 11-15 yrs
 16-20 yrs 21-25 yrs 26-30 yrs 30+ yrs

Gender: Female Male

Year Levels taught this year:
(please circle year levels) **0 1 2 3 4 5 6 7 8 9 10 11 12 13**

Subjects taught this year: _____
(*Secondary/Intermediate Specialist Teachers Only*)

PART 2: PROFESSIONAL DEVELOPMENT IN ICT**1. How many days (or day equivalents) of formal ICT Professional Development had you had in the last 2 years prior to the Cluster project?**

e.g.: night classes, in-service courses, after school sessions, holiday courses, online courses, tertiary papers etc.

- None 1 to 5 days 6 to 10 days more than 10 days

2. How do you prefer to learn new ICT skills?

Please rank the following options in order of preference (1 being the LEAST preferred option)

Ranking

a	On my own, with written support material	
b	One to one with a tutor	
c	Working regularly with a partner	
d	In a small group	
e	In a large group <i>i.e. lab situation</i>	

3. What are your preferences when working in a group?

Please tick the appropriate box for each of questions a-d.

Do you prefer to work in groups with...

a	<input type="checkbox"/> others at the same/similar levels of skill or experience re. ICT	or	<input type="checkbox"/> a mixture of levels of skill or experience re. ICT	or	<input type="checkbox"/> either / no preference
b	<input type="checkbox"/> staff from my own school	or	<input type="checkbox"/> staff from other schools	or	<input type="checkbox"/> either / no preference
c	<input type="checkbox"/> members of my own department or syndicate	or	<input type="checkbox"/> members of other departments or syndicates	or	<input type="checkbox"/> either / no preference
d	<input type="checkbox"/> separate primary or secondary groups	or	<input type="checkbox"/> mixed primary-secondary groups	or	<input type="checkbox"/> either / no preference

4. How able/willing are you to attend some sessions in your own time throughout the year?

Please rate each of these options with a 4,3,2,1, or 0 rating.

4 = enthusiastic. 3 = can arrange it. 2 = can but would rather not. 1 = would but can't arrange it.

0 = this is beyond reasonable expectation.

Rating

a	After school sessions	
b	Occasional Saturday mornings, <i>i.e. perhaps one or two a year</i>	
c	Several Saturday mornings, <i>i.e. perhaps three or four a year</i>	
d	School holiday programme - half day, <i>i.e. during the July &/or Sept breaks</i>	
e	School holiday programme - whole day, <i>i.e. during the July &/or Sept breaks</i>	

5. To what extent are you able to focus on ICT issues in your PD this year:

Please tick the box alongside ONE of the following descriptors

- ICT is the major focus of my PD this year
 ICT is a secondary focus for my PD this year
 ICT is a low priority for my PD this year

Comment	
---------	--

6. Preferred PD Activities

Facilitators in the ICT Clusters are planning to use a range of types of professional development activities. Please read the following explanation of each type, and indicate your preferred option/s in the grid below. Note that clusters are not necessarily contracted to offer all of these types of PD. This is to get some idea of your current preferences.

Write in each box a number 0-4 representing the extent of appeal of the activity.

4= has strong appeal 3= has some appeal 2= no view either way 1= does not appeal 0= I would hate it

Rating 0-4

a	Study Groups: Teachers join a study group of three or more members with common interests and goals. The group meets regularly (e.g. lunchtimes, after school, evenings) to explore new and better ways of teaching, to share tips, resources, stories and to develop trial projects. The results of these trials form the basis of discussion at subsequent meetings. Project directors would provide ongoing advice and support.	
b	Technology Coaches: Every teacher could become a technology coach - good at something and prepared to help and support others accomplish this. The idea is that everyone can make a contribution to the ongoing learning culture in the school. Responsibility is shared broadly so that each teacher has an area of expertise and everyone is an expert in something.	
c	Technology Mentors: Teachers who are highly skilled in certain areas are paired for a short time with less skilled teachers in order to pass on their expertise.	
d	Tutorials: Short bursts of on-site learning – perhaps an early morning session on inserting graphics into text or organising bookmarks in a browser for those unsure of the methods. The agendas for these short tutorials would be based on teachers' needs.	
e	Workplace Visits: Visits to ICT intensive workplaces would be organised so that teachers can see the impact of ICT and better understand the implications for learners and classrooms.	
f	Retreats or Intensive Practicums: Teachers given several days out of classroom at one time for intensive PD or training. May be followed by occasional further single release days.	
g	Release Time: Time given to discuss and translate new ideas and strategies into practical classroom unit plans with the help of a mentor.	
h	Professional Reading: A regular selection of reading material will be available, which describes the latest developments in teaching and learning with ICT and also developments which could have an effect on schools in the future. Those choosing this option will receive hard copies of key readings for personal study.	
i	On-the-spot Support: Facilitators will be available to provide classroom support for those teachers who feel unsure when first trialing the use of ICT with their classes.	
j	Listserv Membership: This is an informal discussion group using email where teachers in the cluster can talk over problems and successes, ask questions and offer solutions. Teachers can gain confidence and may wish to join one or more of the many other listservs available for teachers.	
k	Workshops/Seminars: These will offer a varied programme of activities and will be scheduled outside school hours.	
l	School Visits: Visits to other schools both within and beyond the cluster to investigate initiatives that are being, or have been implemented.	
m	Financial support to attend or present at Conferences.	
n	Lead Teachers: Teachers with particular interest or expertise put through a PD programme & then expected to provide ongoing mentoring, run workshops etc for others on their staff.	
o	Other (specify)	

7. Professional Development Goals

Please list 3 or 4 specific goals or objectives that you would like to achieve as a result of your participation in the ICTPD Schools Cluster Programme. Please indicate how important those goals are by writing a number 1-3 in the box alongside each objective to indicate priority.

1= A major goal. 2= An important but secondary goal. 3= A minor goal.

GOALS (BE AS SPECIFIC AS POSSIBLE)	PRIORITY (1-3)
a _____	<input type="checkbox"/>
b _____	<input type="checkbox"/>
c _____	<input type="checkbox"/>
d _____	<input type="checkbox"/>

PART 3: VIEWS ON ICT IN EDUCATION

8. Please indicate with a tick in the appropriate box the extent to which you agree or disagree with each of the following statements

(a) ICT can make major improvements to the **effectiveness of lesson planning and preparation**.
 strongly agree agree not sure/neutral disagree strongly disagree

(b) ICT can make major improvements to the **effectiveness of school administration**.
 strongly agree agree not sure/neutral disagree strongly disagree

(c) ICT can make major improvements to the **efficiency of curriculum delivery** in my classroom.
 strongly agree agree not sure/neutral disagree strongly disagree

(d) ICT can make major improvements to the **quality of curriculum delivery** in my classroom.
 strongly agree agree not sure/neutral disagree strongly disagree

(e) Overall, the investment by schools in ICT can be justified by the teaching and learning outcomes.
 strongly agree agree not sure/neutral disagree strongly disagree

9. What, in your opinion, are the main benefits to be gained from the use of ICT in schools?

10. What are your greatest concerns about using ICT?

Please rate each of the following as it applies to you, on a 0-2 scale.

2 = significant concern 1 = some concern 0 = no concern

Rating

		Rating
a	The ongoing need to upskill myself in using new software packages	
b	Access to equipment for my own professional use	
c	Access to equipment for my students' use	
d	Equipment breakdown/ technical problems	
e	The need to change my teaching style	
f	Not knowing how to include the use of ICT in my teaching programmes.	
g	Keeping up to date with new developments	
h	Lack of time to cope with it all	
i	Lack of support	
j	Too much change, too quickly	
k	Lack of training	
l	My suspicion that they don't actually improve learning	
m	Unexpected changes to the daily timetable	
n	Feeling already too far behind	
o	Lack of keyboard skills	
p	Other concerns. Please specify :	

11. How confident are you about using ICT?

Please tick the appropriate box.

- (a) How confident are you about using ICT **personally**:
 Very confident Confident Neutral Not Confident Anxious
- (b) How confident are you about using ICT **in your classroom**:
 Very confident Confident Neutral Not Confident Anxious

PART 4: CURRENT ICT SKILLS

Please note that this is a baseline survey to ascertain usage of ICT among cluster teachers on a national basis AT THE BEGINNING OF THE ICT CLUSTERS PROGRAMME. You are not necessarily expected to have much or any experience in the particular activities outlined below, and certainly not **all** of them, either now or at the end of the PD.

IF YOU CURRENTLY DO NOT USE A COMPUTER AT ALL, PLEASE TICK THIS BOX & PROCEED TO PART 6.

12. Please indicate your current level of achievement in each of the following ICT competencies.

Tick the boxes which best reflect your **current** level of knowledge/skill attainment. (Be honest, but be kind to yourself! We will be asking the same questions again at the end of the programme.)

a. BASIC COMPUTER OPERATION	
<input type="checkbox"/>	I use the computer to run one or two software programs that are available.
<input type="checkbox"/>	I run two programs simultaneously. I have several windows open at the same time and can transfer information between documents.
<input type="checkbox"/>	I troubleshoot successfully when basic problems with my computer or printer occur. I learn new programs on my own and can install software from a CD-ROM.
<input type="checkbox"/>	I can install most types of software. I can download updates and executable files from the Internet. I can unzip compressed program files. I can update hardware drivers.
<input type="checkbox"/>	I can handle the basic administration of an NT, Novell or Macintosh network.
b. FILE MANAGEMENT	
<input type="checkbox"/>	I do not save any documents I create on the computer.
<input type="checkbox"/>	I select, open and save documents.
<input type="checkbox"/>	I save work in a variety of locations e.g. local hard drive, a specified network location, floppy disk. I create my own folders to keep my files organised.
<input type="checkbox"/>	I move files between folders and drives. I understand about directory paths and the use of folders. I can use the find feature to locate files on the hard drive
c. WORD PROCESSING	
<input type="checkbox"/>	I do not use a word processing program.
<input type="checkbox"/>	I occasionally use a word processing program for simple documents. I generally find it easier to hand write most written work I do.
<input type="checkbox"/>	I use a word processor for much of my written professional work <i>i.e. memos, tests, activity sheets and home communication</i> . I edit, spell check and change the format of a document.
<input type="checkbox"/>	I use a word processor for all my professional written work. I use editing and formatting tools with confidence <i>ie. tabs, headers/footers, auto-insertion, tables, footnotes, auto-numbering, bullets, hanging indents etc.</i>
d. SPREADSHEET USE	
<input type="checkbox"/>	I do not use a spreadsheet.
<input type="checkbox"/>	I understand the use of a spreadsheet and can navigate within one. I create simple spreadsheets and charts/graphs.
<input type="checkbox"/>	I use spreadsheets for a variety of record-keeping tasks. I use labels, formulas, cell references and formatting tools in my spreadsheets. I choose charts which best represent my data.
<input type="checkbox"/>	I am confident in the creation of complex spreadsheets with multiple formulae and circular references.

e. DATABASE USE	
<input type="checkbox"/>	I do not use a database.
<input type="checkbox"/>	I understand the use of a database. I can locate information from a pre-made database such as a library catalogue or school journal database.
<input type="checkbox"/>	I create my own databases. I define the fields and choose a layout to organise information I have gathered. I can use my database to answer questions about my information.
<input type="checkbox"/>	I can create complex databases with extensive search and analysis facilities.

f. GRAPHICS USE (Drawing/painting/image editing)	
<input type="checkbox"/>	I do not use graphics in my word processing or presentations.
<input type="checkbox"/>	I open/create and place simple pictures into documents using a drawing program and/or clipart and/or a scanner.
<input type="checkbox"/>	I can create and enhance graphic images using simple editing tools e.g. resizing, recolouring, cropping, rotating.
<input type="checkbox"/>	I capture and edit images from a wide variety of sources e.g. scanner, digital camera, Internet.
<input type="checkbox"/>	I use sophisticated image handling software with confidence e.g. Corel, Photoshop.

g. INTERNET USE (WWW)	
<input type="checkbox"/>	I do not use the World Wide Web.
<input type="checkbox"/>	I can access Internet websites to find information. I follow links from these sites to various other resources.
<input type="checkbox"/>	I can successfully enter my own URLs (website addresses) and make profitable use of keywords in Web search engines to explore educational resources.
<input type="checkbox"/>	I understand the significance of URL name structures and use 'and/or' queries and other advanced features of search engines
<input type="checkbox"/>	I can create web pages using either HTML or an editing program such as Front Page.

h. TELECOMUNICATIONS USE (E-MAIL)	
<input type="checkbox"/>	I do not have an e-mail account.
<input type="checkbox"/>	I have an e-mail account but I rarely use it.
<input type="checkbox"/>	I send and receive e-mail messages. I check my e-mail regularly and keep the size of my mail folders manageable.
<input type="checkbox"/>	I am confident in the use of e-mail. I use attachments, store addresses and nicknames, have a signature, forward mail and use listservs.

i. ETHICAL USE	
<input type="checkbox"/>	I am not aware of any ethical issues surrounding computer use.
<input type="checkbox"/>	I know that some copyright restrictions apply to computer software.
<input type="checkbox"/>	I am very clear about copyright restrictions as they apply to the use of software on both personal and school computers. I understand the function and significance of approved use policies and contracts.

j. VIDEOTAPE PRODUCTION	
<input type="checkbox"/>	I do not use a video camera.
<input type="checkbox"/>	I create original video tapes for home and school projects.
<input type="checkbox"/>	I create original video tapes using editing equipment.

k. PRESENTATION SKILLS/MULTIMEDIA	
<input type="checkbox"/>	I do not use a computer presentation program.
<input type="checkbox"/>	I am able to create a simple linear slideshow in presentation applications such as Powerpoint, Claris Works, KidPix or Hyperstudio. incorporating text and graphics
<input type="checkbox"/>	I am able to create presentations which incorporate text and graphics, but also various multimedia elements such as sound, video clips and simple animations..
<input type="checkbox"/>	I can create branching presentations incorporating methods of making presentations interactive such as buttons, timed links, or basic scripting etc.

PART 5: CURRENT USE OF ICT FOR PLANNING, PREPARATION & ADMINISTRATION**13. Please indicate the frequency with which you use ICT as part of your planning, preparation and presentation of classroom materials.***Enter a rating 1,2,3,4 or 5 in the box on the right.*

5 = Always

4 = Often

3 = Sometimes

2 = Rarely

1 = Never

Frequency

a	I use Word Processors or a Desktop Publishing package to produce task sheets, tests, handouts etc.	
b	I access the internet for finding and collecting lesson ideas.	
c	I access the internet for assessment items.	
d	I access the internet to get official documents from the Ministry, NZQA etc.	
e	I get lesson content materials from electronic encyclopaedias on CD ROM.	
f	I produce lesson materials using digital cameras, video editing, digitising, scanning etc.	
g	I access the internet for professional readings, subject association newsletters etc.	
h	Other use of ICT for planning, preparation etc (please specify):	

14. How frequently do you currently use ICT for the following administration purposes?*Enter a rating 1,2,3,4 or 5 in the box on the right.*

5 = Always

4 = Often

3 = Sometimes

2 = Rarely

1 = Never

Frequency

a	Recording or calculating assessments, marks and grades.	
b	Recording students' running records.	
c	Accessing staff notices.	
d	Email correspondence with colleagues on administrative matters.	
e	Writing Reports for parents.	
f	Recording absences.	
g	Other (Please specify)	

PART 6: CURRENT USE OF ICT WITH STUDENTS**15. What proportion of your units of work contains ICT based learning activities?***Please tick the appropriate box* all or almost all units most units several units one or two units no units**16. Describe any TWO activities you have tried involving student use of the ICT, and indicate how successful you consider that activity was in fostering student learning.**

(1) _____

(2) _____

17. Please indicate the average frequency (using the 1-5 scale below) with which some or all students have done any of the following during your lessons over the last year.

5 = Daily or almost daily 4 = Avg. 1-2 times a week 3 = Avg 1-2 times a Term

2 = 1-2 times over the year 1 = Never

Frequency

a	Composing, editing and presenting creative work using Word Processors &/or graphics packages	
b	Composing, editing and presenting 'project' or content-based work using Word Processors &/or graphics packages	
c	Accessing or searching for information on the internet	
d	E-mailing other students or experts about a current topic or problem	
e	Presenting their learning in the form of computerised slide shows (mainly or exclusively text & pictures)	
f	Editing and composing multimedia presentations or videos using computer software (i.e.: including sound and moving images)	
g	Data logging using external monitoring devices connected to a computer	
h	Working through content or concept simulations on computer	
i	Practising skills or reinforcing knowledge using content specific Drill and Practice programmes (e.g.: Maths Games, Reading Games etc)	
j	Learning from a computer based tutoring programme	
k	Writing computer programmes or scripting interactive presentations	
l	Accessing or searching for information on electronic encyclopaedias (e.g.: on CD ROM)	
m	Designing and/or creating web-pages to present learning	
n	Recording, calculating and analysing data using Databases or Spreadsheets.	
o	Faxing or phoning other students or experts about a current topic or problem	
p	Using the electronic catalogue to find appropriate reading in the library	
q	Other (specify)	

Thank you for completing this survey. We appreciate the attention you have given it. We will be revisiting the questions at the end of the programme with a view to identifying changes in usage etc over the period of the programme and assessing the impact of the programme in terms of meeting your needs and expectations.

This version of the baseline questionnaire has been developed by Vince Ham, Ultralab South. It is based heavily on the Needs Analysis questionnaire developed by Liz Probert and Angela Longney for the Pakuranga ICT Cluster in the 23 ICT Cluster Schools Project 1999-2001.

If you have any queries or comments regarding the questionnaire, please contact: Dr. Vince Ham, Email: vince@ultralab.net

Appendix 3.

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.



ICTPD School Clusters Professional Development Programme 2004 – 2006 Clusters END-OF-PROJECT EVALUATION

This questionnaire is being distributed to all teachers who have been involved in the ICT School Clusters Professional Development Programme, so that you may contribute to the end-of-project evaluation of the Programme. It is part of an ongoing, independent research project on the ICTPD School Clusters.

Individually attributable responses will be kept strictly confidential to the research team, though generalised results, quotations and statistics may be published in aggregated form.

*Please seal your completed questionnaire in the envelope provided, write your name and school on the back of the envelope, and return the sealed envelope to your cluster facilitator before **Wednesday 13 September 2006***

DEMOGRAPHIC

Cluster Name or Lead School:

Your Name:

(Needed for comparison with the baseline survey done at the beginning of the project)

School:

(Needed for comparison with baseline survey.)

Gender: Female Male

School Sector: Primary Secondary Both

Length/Duration of your involvement in ICTPD Programme: 0-6 mths 7-12 mths 13-18 mths
Indicate the time span over which you received **active** ICTPD support 19-24 mths 25-30 mths 31-36 mths
(workshops, facilitator visits, conferences, seminars, etc) as part of the cluster programme

Do you have a laptop under the TELA scheme? Yes No

If yes, how long have you had a laptop under the scheme? 0-6 mths 7-12 mths 13-18 mths
 19-24 mths 25-30 mths ≥31 mths

THE ICTPD CLUSTER PROFESSIONAL DEVELOPMENT PROGRAMME

1. Please indicate your level (1-5 scale) of confidence in relation to personal and classroom use of ICTs with reference to BOTH BEFORE and AFTER taking part in the ICTPD Programme. Enter a rating 1,2,3,4 or 5 in EACH column. (See example)

1= Anxious 2= Not confident 3= Neutral 4= Confident 5= Very confident

Confidence about using ICTs		Before PD	After PD
Example	How confident were/are you about using ICTs with your classes	2	4
a	How confident were/are you about using ICTs personally ?		
b	How confident were/are you about using ICTs with your classes ?		

2. Please indicate your level (1-5 scale) of competence with each of the following ICTs BOTH BEFORE and AFTER taking part in the ICTPD programme. Enter a rating 1,2,3,4 or 5 in EACH column
 1= Very low/None 2= Low 3= Moderate 4= High 5= Very high

	ICT	Before PD	After PD
a	Basic Computer Operation (running programmes, trouble shooting, etc.)		
b	File Management (manipulation of documents, folders, etc.)		
c	Word Processing (manipulation of text – programs such as Word)		
d	Spreadsheet (create charts/graphs, use for record keeping purposes – programs such as Excel.)		
e	Database (use pre-made databases such as library catalogue database or create own databases)		
f	Graphics (manipulation of pictures and images – programs such as KidPix, Photoshop, etc.)		
g	Internet (searching and/or website design)		
h	Telecommunications (email, chat, etc.)		
i	Presentation / Multimedia (incorporating sound, movies, etc.)		

3. Please indicate the frequency with which you used ICT BEFORE and AFTER the ICTPD programme for the two purposes below. Enter a rating 1,2,3,4 or 5 in EACH column.
 1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always

	Purpose	Before PD	After PD
a	School administration e.g. reports, marks and grades, attendance etc		
b	Finding or producing resources for lessons		

4. To what extent has ICT been integrated into your units of work? (Please answer with reference to both BEFORE and AFTER the ICTPD programme. Please enter a rating 1, 2, 3, 4, 5 in the relevant box in both columns).

1. No units 2. One or two units 3. Several units 4. Most units 5. All or almost all units

	Extent of ICT Integration	Before PD	After PD
	What proportion of your units of work contains ICT based learning activities?		

5. a) To what extent have your classroom practices changed as a result of your participation in the ICTPD programme? (Please tick ONE box only).

- Not at all Very little To some extent To a large extent Completely changed

b) Describe these changes (positive and/or negative) to your classroom practices.

Positive: _____

Negative: _____

6. a) To what extent has the ICTPD programme contributed to your understanding of teaching and learning generally? (Please tick ONE box only).

- Not at all
 Confirmed current ideas/understandings about teaching and learning
 Contributed some new ideas about teaching and learning
 Provided a whole new approach to teaching and learning

b) Describe how the ICTPD programme has contributed to your understanding of teaching and learning in general.

7. Describe up to 5 different ICT based activities that your students have engaged in during the last year?

Identify the subject or learning area (e.g. Health, Science, integrated curriculum), the type of ICT/software you used (e.g. Internet word-processor, digital camera), and the learning outcomes for students.

	Essential Learning Area	Software / ICT	Learning Outcomes for Students
	<i>e.g. English/Languages</i>	<i>e.g. Word Processor, Digital camera</i>	<i>e.g. Presenting different points of view</i>
	<i>e.g. Science</i>	<i>e.g. CD Rom tutorial, Spreadsheet</i>	<i>e.g. Work on Motion formulae problems</i>
a			
b			
c			
d			
e			

8. How often, on average, did/do your students use ICT based activities where the following constituted the main purpose of the activity? Please indicate a frequency of use for both the year BEFORE the ICTPD programme, and NOW in this last year. Use the 1-5 scale below

1 = Not at all

2 = Once or twice in the year

3 = Once or twice a term

4 = Once or twice a week

5 = Daily/almost daily

	Purpose	Activity	Before PD	Now
a	Communication	<u>Text and picture presentation</u> : e.g. making posters, journals, written stories etc		
		<u>Multimedia presentations</u> : e.g. making slideshow; presenting results of project using PowerPoint or Hyperstudio etc		
		<u>Online interaction</u> : e.g. emailing or chatting with experts/other students on a current topic or a problem. Belonging to e-club or contributing to online communities		
b	Creativity	e.g. creative writing, designing and making websites, editing and composing music, video etc. creativity focus		
c	Information gathering/processing	e.g. accessing or searching for information on the internet, accessing school library electronic catalogue, or data logging using external devices connected to computers		
d	Problem solving	e.g. calculating/analysing data, working through concept simulations on computer, designing or developing their own spreadsheet or database to solve a problem; interactive fiction		
e	Curriculum practice	e.g. learning from tutoring software, reinforcing pre-taught knowledge or practicing skills; drill and practice		
f	Technical skills	e.g. cut and paste, file management, importing digital photographs, key board skills, how to use Inspiration		
g	Collaborative learning and social interaction	e.g. working in groups to solve a problem using spreadsheets etc, collaborating on DTP projects etc		
h	Motivation/Reward/Engagement	e.g. working on a CD Rom or game as a reward		

9. To what extent to date do you think you have effectively integrated ICTs into your classroom teaching and learning? (Please tick ONE box only).

- Not at all Very little To some extent To a large extent Completely

10. What were the main three benefits you observed for students/learners in their use of ICTs?

a) _____

b) _____

c) _____

11. To what extent were your goals/expectations met by ICTPD programme? Please answer with regard to the 5 types of goals below, using the following five point scale:

1= Not met 2= Partially met 3= Largely met 4= Fully met 5= Exceeded

	Type of goal	Extent to which goal met
a	Technical skill development	
b	Ideas for using ICTs with classes	
c	Quality teaching and learning enhancement in general	
d	Using ICTs for administration	
e	Gaining of Qualification	

12. Which aspects of the last two terms of your ICTPD school cluster programme have you:

a) Most appreciated?

b) Least appreciated?

13. a) To what extent has any increase in your use of ICTs with classes over the last three years been attributable to the ICTPD Professional Development Programme? Please tick ONE box only

- Not at all attributable Partly attributable Largely attributable Completely attributable

b) If other factors were involved, what were they?

14. What are your greatest current concerns about using ICTs in schools? Please rate each of the following as it applies to you, on a 1-3 scale

1 = No concern 2 = Some concern 3 = Significant concern

		<i>Rating</i>
a	Access to equipment for my students' use	
b	Insufficient technical support	
c	Making the links between ICTs and quality teaching and learning	
d	Lack of ideas on how to use ICTs with classes	
e	Lack of time to cope with it all	
f	Need for ongoing professional development	
g	Keeping up-to-date with required skills and knowledge on ICT developments	
h	Technical reliability/equipment breakdown	
i	Others: Please specify	

15. a) How significant has the ICTPD Cluster Programme been in your overall development as a teacher?

Not significant Slightly significant Somewhat significant Very significant

b) Comments:

Thank you for your participation in the ICTPD Cluster programme and for completing this evaluation.

Please seal your completed questionnaire in the envelope provided, write your name and school on the back of the envelope, and return the sealed envelope to your cluster facilitator before Wednesday 13 September 2006

Queries or comments regarding this questionnaire should be addressed to:

Hasan Toubat or Sandra Williamson-Leadley,
CORE Education Ltd,

Cnr Manchester & Armagh Sts,
P O Box 13678, Christchurch 8141
Tel (03) 379 0715

Email: hasan@core-ed.net or sandra.wl@core-ed.net