

KEY FINDINGS FROM THE TEACHER SURVEYS

THE IMPACT OF THE EARLY CHILDHOOD EDUCATION INFORMATION COMMUNICATION TECHNOLOGY PROFESSIONAL LEARNING (ECE ICT PL) PROGRAMME

This chapter considers the impact of the Early Childhood Education Information Communication Technology Professional Learning (ECE ICT PL) programme and summarises the findings of a comparative analysis of baseline, mid-project and end-of-project surveys (completed by teachers at the beginning, mid-point and end of the programme respectively). In each case the survey consisted of two questionnaires:

- A questionnaire completed by the Lead Teacher of the ECE ICT PL programme in each of the services taking part, profiling the range of ICTs available in participating services.
- A questionnaire completed by each of the teachers in the services taking part in the ECE ICT PL programme, profiling the range and level of use of ICTs for teaching and learning, as well as teacher capability (attitudes, confidence and skills) with regard to ICTs in the participating services.

Demographics – services

Just over half of the 60 services involved in these surveys are kindergartens and just under half are education and care services. One of the participating services is a Hospital early childhood service and one, that joined the project after the original baseline survey was conducted, is a Playcentre.

Demographics – teachers

The baseline survey was designed and conducted by the ECE ICT PL team and completed by all 59 participating services and 283 of the teachers in the programme during term 1 of 2007. The mid-project survey was completed by 56 of the services and 247 participating teachers in 2008; and 46 of the services and 245 contributing teachers completed the end-of-project survey in 2009.

The surveys gathered data on three areas of change across time:

- ICT capacity (what ICTs the services have)
- ICT capability (how able staff are to use the ICTs)
- ICT usage (what teachers and children do with ICTs including learning outcomes for children).

The specific indicators of capacity, capability and usage for which change was measured in the surveys were:

- For services:
 - ICT facilities available in the services (these 'facilities' consisted of hardware only. Services were not asked to provide information about their holdings of educational or administration software)
 - the location of these facilities within services
 - the main users of the facilities.

- For teachers:
 - levels and types of use of ICTs for administration, teaching and learning in their services (including the range of learning outcomes involved in use of ICTs by or with children)
 - teacher attitudes towards ICTs (including their goals for the programme and any particular concerns they have about the use of ICTs for teaching and learning)
 - teachers' confidence about their use of ICTs, both personally and for teaching and learning
 - teachers' levels of skill with a variety of ICTs commonly found/used in educational contexts.

The key findings

Technical infrastructure in services

Since the start of the programme, services have significantly increased their stocks of computers and other ICTs – most of this increase has been in relation to ICTs located in play areas.

There has been an increase in the number of laptops available for children's use – at the start of the project 38% of services had at least one laptop available in children's play areas and this increased to 59% by the end of the project.

The majority of services possess at least one digital still camera, printer, scanner and video camera with a significant proportion having acquired three or more of each of these provisions. Many services have also increased their range of ICT tools, for example, webcams have increased from 7%–52%, TVs increased from 22%–69% and digital microscopes increased from 14%–78%.

The least prevalent educational technology in services for children's use are interactive whiteboards, with only 4% of services having access to this resource. Other mobile technologies such as cell phones and iPods are still not widely used as a teaching and learning resource across most services; however, these provisions have seen a slight increase, suggesting that services are slowly immersing a wider range of ICTs into the learning environment.

In contrast with the baseline survey, when most technologies were located in offices, the majority of technologies are now based in services' play areas. Digital cameras, laptop computers, photocopiers and digital microscopes were the technologies used most by children in all surveys.

The level of broadband access has increased from four fifths to almost all services having access to a faster web connection, with the great majority of services (91%) providing Internet access via wireless networking.

Usage of ICTs in services

Both ICT use and ICT capability in participating services have increased significantly since the start of the project.

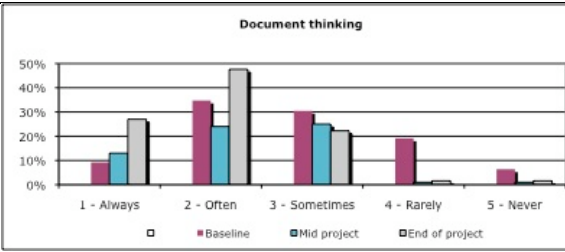
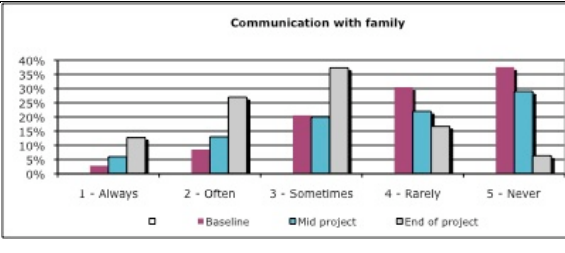
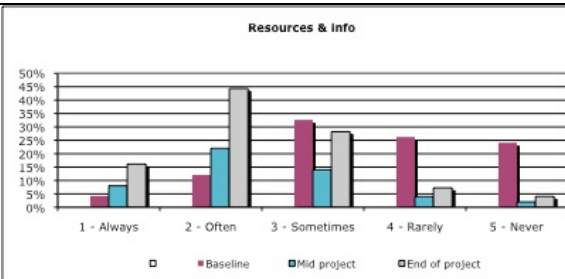
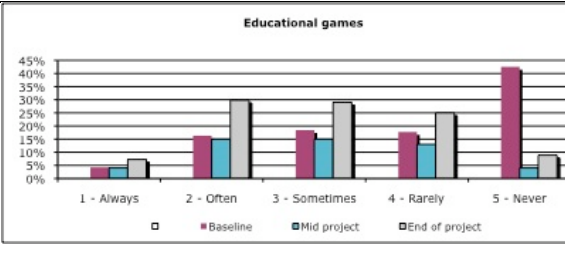
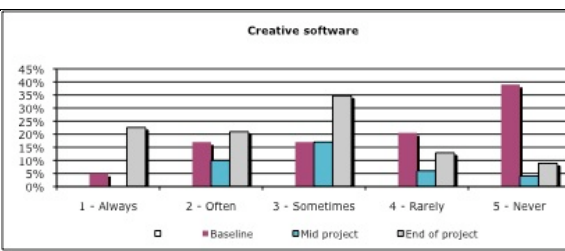
Teachers' use of ICTs for all of the professional tasks investigated increased significantly. The greatest teacher use of ICTs is for assessing and documenting children's learning, with 94% of teachers using ICT for this purpose and many teachers also using ICTs to successfully complete service admin (81%).

Interestingly, the greatest proportional increases demonstrate that the use of ICTs is progressing beyond the service, with 77% of teachers regularly using ICTs to effectively communicate with parents and whānau and to help create strong links within the local community.

ICTs for teaching and learning with children have seen even greater increases than by teachers use for professional administration. The most frequent use of ICTs with/by children is for documenting learning, especially through the use of digital still cameras and the co-writing of learning stories. At the end of the programme, over three-quarters of teachers report that their children routinely use ICTs for this purpose.

The greatest proportional increase in children’s use of ICTs is in the exploration of creative software. Almost half of the teachers surveyed indicated that the children regularly use ICTs for this purpose. Exploring educational games remained the least used function.

Chart 1. Use of ICTs with/by children in services throughout the programme

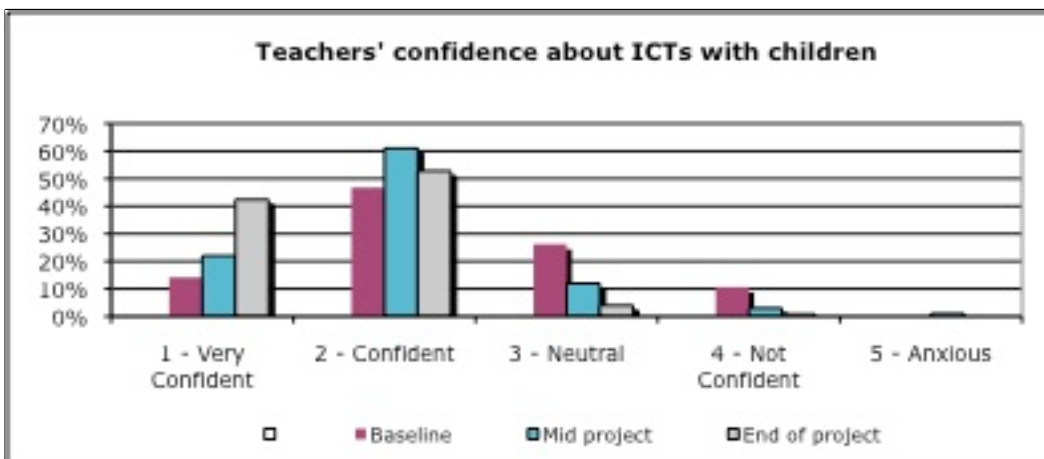
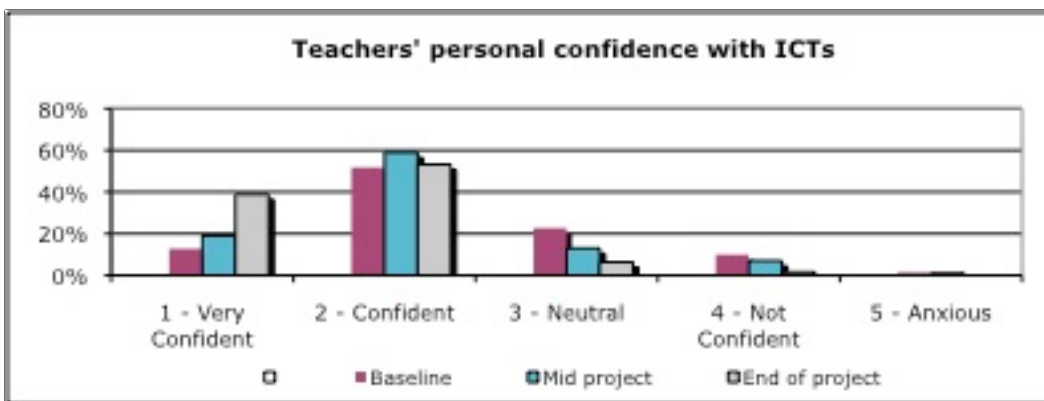
	<p>How often do you involve children in the use of ICTs?</p> <p>To document their ideas, thinking, experiences, eg. children taking photos, downloading, recording their 'voice', using an interactive whiteboard.</p>
	<p>To communicate with their families/whānau, eg. children sending emails and faxes.</p>
	<p>To find and develop resources, eg. children researching on the web, making games, making their own books.</p>
	<p>To explore educational games, eg. Little Brown Bear Series.</p>
	<p>To explore creative software, eg. Kid Pix, Artrage.</p>

Teacher attitudes to ICTs and their use for teaching and learning

At the mid-point of the programme, teachers reported being more concerned than they were at the beginning of the programme about the lack of time for integrating ICTs into their programmes. By the end of the project, teachers were still just as concerned about the lack of time but were also significantly concerned about an ongoing need for professional development and the need to keep up-to-date with required skills and knowledge on ICT developments. Teachers were also concerned about a lack of finances for resources and technical reliability, but were less concerned about a lack of ideas on how to use ICTs in their programmes and making links between ICTs and quality teaching and learning.

Over the duration of the programme teachers' confidence levels increased significantly in regard to both their own personal use and use by/with children. By the end-point the vast majority (80%) of the teachers were 'confident' or 'very confident' about their own and/or children's use of ICTs, and very few (4%) were still 'not confident' or 'anxious' about these.

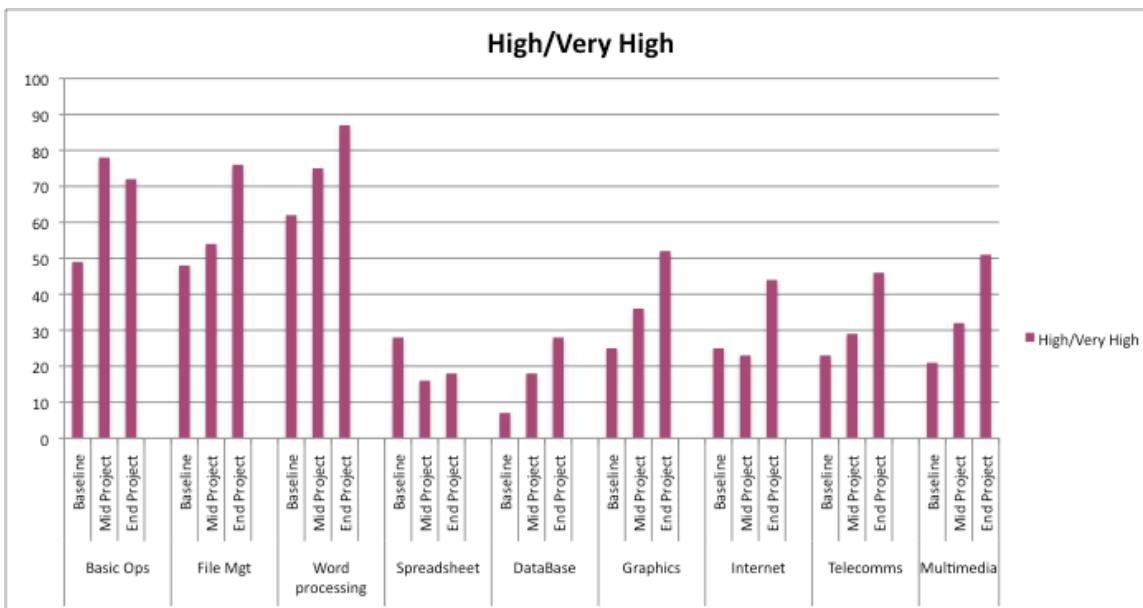
Chart 2. Changes in teachers' confidence about their personal ICT use and about ICT use with/by children



Teachers' ICT skills and ability to integrate ICTs into teaching and learning

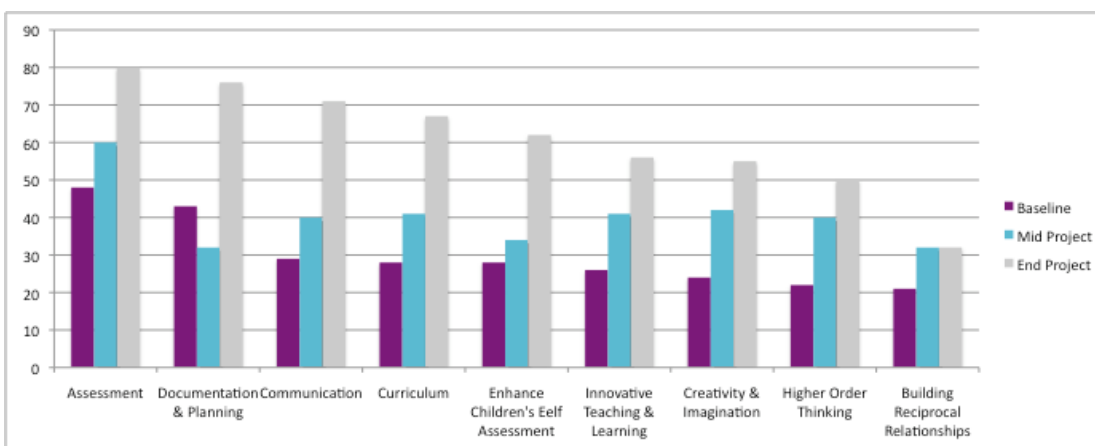
By the end of the project, reported levels of 'moderate' or 'better' competence have stayed stable for word processing, basic operations, file management and databases. Reported increases in skills were greatest with respect to Internet, spreadsheets, graphics and telecommunications, and there has been a slight decrease in levels of confidence with multimedia presentations.

Chart 3. Percentage of teachers who reported 'high' or 'very high' skills throughout the project



There have been substantial increases in teachers' rating of their Technological Pedagogical Content Knowledge (TPCK) since the beginning of the project, over all of the specific knowledge or children outcomes listed. Teachers continue to feel most 'skilled' at using ICTs for assessment of learning. Their levels of pedagogical ability increased the most in relation to using ICTs to support documentation planning and communication.

Chart 4: Changes in proportions of teachers reporting 'high' or 'very high' ability in integrating ICTs for a variety of pedagogical and learning outcomes



Ongoing professional learning

Teachers gained confidence and skill the longer they participated in the programme, thus, as a result, offering learning opportunities that were appropriate and engaging for young learners. The confidence and skill levels of participating teachers had increased significantly in most areas. Almost a third of teachers wanted the professional learning programme to continue after it had finished to ensure that they were able to maintain high levels of confidence and skill when using ICTs in the classroom environment.

Overall, the services continue to run relatively up-to-date computer systems. Windows/PC machines continue to be in more services than Mac machines; and Mac Operating Systems continue to be more proportionally common in kindergartens than in education and care services. Macs are also in more services as laptops than as desktops.

Table 1. Proportions of services running Windows/PC versus Mac platforms

Desktops. Windows/PC	Desktops. MACOS	Laptops. Windows/PC	Laptops. MACOS
87%	39%	78%	48%

Qualitative results

In their responses to open-ended questions, asking them to identify the most important gains they have made from the programme, teachers identified a fairly wide range of gains.

Teachers identified a fairly wide range of qualitative gains from the programme:

- deeper pedagogical knowledge (most prominent gain)
- substantial increases in teacher confidence and competence in relation to ICTs
- increased use of ICTs for a variety of curriculum purposes/service purposes
- significantly increased levels of integration of ICTs into children's learning programmes
- a much greater focus on the children themselves using ICTs for learning
- more critically reflective practice as teachers.

A small sample of what teachers identified as gains from the programme:

More confident with use of ICT; children's involvement with ICT; ability to share their increasing knowledge with others; communicating with other professionals about ICT; integrating ICT into teaching and learning; increased knowledge about ICT and its use; giving children opportunity to explore new and exciting learning and media; providing more areas for communication and sharing/children.

More confident in use of ICT; children have learned processes such as making slideshows in Kid Pix and have gone on to teach others – peer tutor; empowerment – they go on to be leaders in other situations; they are confident; using data projector to show children’s learning; making of slide shows; teachers ‘letting go’ and allowing the children to take the photos on the camera, we have become co-learners.

Children use the digital camera to take their own photos then go on to make slide shows, ibooks and mini movies with their photos; empowerment of children; children are experiencing success in the area of ICT and this spills over to other areas in the curriculum i.e. playing games outside; children are taking responsibility for their own learning.

Teachers’ knowledge and children’s knowledge has increased; collaboration between teaching teams; a tool for reflective practice; children are able to drive their own learning more; there is opportunity for reflecting and revisiting previous experiences.

Greater confidence; language and social skills development; the programme has deepened my understanding of children’s learning, especially in the higher learning bracket; greater skill level; leadership and the ability to effectively share our journey through dissemination; powerful problem-solving opportunities; digital documentation of their own learning and interests; teachers can offer learning experiences seen or observed at professional development courses or online.

Providing children with a voice that isn’t dependent on mastery of language; there is an evident rise in peer tutoring as children teach others what to do with the tools; reflecting on the basic nature of what teaching and learning is, so that we can build on it; being flexible and trying to work smarter; providing ways to revisit over long periods of time; offering high-order thinking tasks, as children record what they have done after the event – offering the story; children are more able to share in other’s learning experiences as well as group work/ ICT as a provocation for learning experiences is very evident.

More confident with technical skills; raised levels of overall technical skill; new ways of literacy learning; raised teachers’ levels of self-image and confidence in themselves as learners, able to take on new skills and knowledge; enhanced teachers’ leadership skills; able to access answers and follow up interest areas quickly; new ways to be collaborative; heightens children’s problem solving skills.

RECOMMENDATIONS FROM SERVICES

Services were asked to provide recommendations for others embarking on a similar journey of exploration involving ICT for teaching and learning. The following represents the frequently mentioned suggestions.

- Being a 'techie' type of person is not as important as having a willingness to learn new things, do things in a different way, give things a go and have fun.
- A team-wide commitment is necessary to ensure an ICT-rich culture is supported in any educational context.
- It is easy to get distracted by the big, bright and shiny world of digital tools. Consider carefully whether they will all add depth to learning experiences or will be merely a novelty.
- Planned and strategic induction procedures for new teachers to climb on board will ensure the culture is not lost.
- Discuss changes with the service community to ensure greater participation and support for innovation and change.
- Ensure cybersafety education for all teachers goes hand-in-hand with the exploration of technology.
- Role model cybersafety practices, advocate for cyber-citizenship and keep parents informed about how cybersafety is addressed.
- Participating in the development of policies and procedures around cybersafety will help teachers/adults to clarify their understandings of areas of potential concern.
- Be prepared to learn from children.
- Adopt a buddy system within staff to build ICT capability.
- Ensure that there is strategic planning to address funding for ICT equipment, maintenance and upgrading as well as teacher professional development.
- Take change slowly so that whatever is begun is sustainable.
- If considering blogs or e-portfolios, be prepared to trial these first for manageability – with teachers and/or with a small group of children.

FINAL COMMENTS

The ECE ICT PL programme had three intended outcomes. These can also form a useful framework for summarising the content of the service reports.

Increased ICT capability

When it comes to teacher professional learning, ICT offers different challenges from other areas of the curriculum because of its relative recent association with education. Whereas teachers would be expected to have some experience and background in most content areas of an early childhood curriculum, this cannot be assumed with ICT. Therefore, building teacher capability is an important first step for many teachers wishing to integrate digital technologies into their programme. The services provided strong evidence of increased teacher capability, child capability and less, but still significant, evidence of parent/whānau capability as a result of the programme. An important element of capability is developing an awareness of cybersafety issues and practices. Many services made reference to their increased attention to this aspect as being a positive outcome of the professional learning.

It was clear from the reports that for a number of teachers, building capability involved a step before gaining the skills and knowledge to use ICT. They first needed to be convinced that ICT even had a place in an early childhood programme. Worries about the health risks of children having too much screen time, doubts about the value of ICT to learning for children so young, and a personal fear of ICT were the reasons given for this nervousness. It appears that hearing 'real' stories from other services and seeing the enthusiasm and competence with which children embraced ICT themselves helped to change these perceptions. Having a well-defined purpose for using ICT was important also.

Evidence of children's increased capability in using ICT was also strong across the reports. However, because of the nature of early childhood programmes, where children largely choose the activities they engage in, some children took up the opportunities offered to build their capability more than others.

Transformation of pedagogical practice (linked to ICT) that leads to an enhanced community of practice

This tended to be a goal that services addressed once they had some confidence in using the ICT equipment themselves. With time and the support of the facilitator they were able to move from the 'what?' (ICT) to the 'so what?' (does using this mean for practice) and finally to 'now what?' (do I need to change).

Learning to trust children to use the equipment responsibly, where this had not previously been standard practice, was often the catalyst for re-evaluating the teacher's role. Hearing stories from other services in their cluster – through workshops, hui and the Ulearn conference – about how 'capable and confident' children can be with ICT, was also helpful in transforming teachers' practice. Being willing and able to take risks and try things out – a culture fostered by good leadership – was another affordance for pedagogical change, as was the whole-service approach to professional learning taken by the programme.

Several services talked of 'shifting the balance in power relations' and giving children more opportunities to 'lead their own learning', rather than have this controlled by the teachers themselves. Children presenting and leading mat times was an example sometimes used to illustrate this shift.

Teacher-child interactions are regarded as one side of the 'iron triangle of quality'. A number of services indicated that teachers had made changes to the way they interacted with children as a result of input from facilitators, an outside specialist brought in as a guest speaker at a hui, or the multimedia function of some technology that allowed them to replay their interactions. These experiences often prompted teachers to listen more, be less directive and give children space to voice their ideas and thoughts. Some teachers also amended their use of questions to make their interactions more conversational.

Enhanced learning outcomes for children

The reports were full of examples of ICT being used to enrich children's learning experiences. Often this was learning that was not exclusive to the inclusion of ICT but which could be generated by any resource that was being used in conjunction with wise teaching. In other words, it was the teachers *and* the tools that led to enhanced outcomes.

The added value of ICT was often the diversity it provided in terms of learning opportunities. For some children it offered a voice or 'way in' to becoming more engaged in the service for the first time, while for others it enabled them to re-fashion their existing interests in new ways. Much of the children's learning reported by services was in the social, emotional and communication domains. This possibly reflected the emphasis on these in recent times through *Te Whāriki* (1996) and *Kei Tua o te Pae Assessment for Learning: Early Childhood Exemplars (2004)* – early childhood exemplars rather than the extent of the usefulness of digital technologies in and of themselves. Although using ICT to support subject knowledge learning was not a major focus for teachers across the reports, the one area that did surface quite frequently was literacy.

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APPENDIX 1

APPLICATION FORM FOR ECE ICT PROFESSIONAL LEARNING PROGRAMME

APPLICATION FORM FOR EARLY CHILDHOOD EDUCATION INFORMATION & COMMUNICATION TECHNOLOGY PROFESSIONAL LEARNING PROGRAMME



Please ensure that you have read the following:

- **Foundations For Discovery - ICT Framework For Early Childhood Education;**
- **Guidelines for Making an Application to join the ICT Professional Learning Programme for Early Childhood Education.**

Before submitting your application, ensure that you:

- **Understand the commitment and capability required to be part of the programme;**
- **Answer all the questions;**
- **Sign the form at Section 6.**

Please post **three paper copies** of your completed application and all related information to:

Carrie Matthew
Ministry of Education
Tertiary, Curriculum Teaching and Learning
Early Childhood Education
Level 12, Vogel Building
8 Aitken Street
PO Box 1666
Wellington

It is recommended that you keep a copy of your application and any supporting documents for your own records.

This form is available in Microsoft Word format as a downloadable file from our website www.ece.govt.nz or you can request the form from Carrie Matthew by email at carrie.matthew@minedu.govt.nz.

If you have any queries regarding the application process please contact Ann Hatherly ann.hatherly@core-ed.net

All information will be treated as confidential.

For Ministry use only	
Applicant	Date received:

Published by the Ministry of Education in October 2005.

The information is accurate at the time of publishing but may change.

SECTION 1: ABOUT YOUR SERVICE

1.1 What is the name of your ECE Service as it appears on your licence?

1.2 What is your Ministry of Education unique number as it appears on your licence?

1.3 What is the physical address of your service?	
Street / RD#:	
Town / City / Area:	Postcode:
Daytime phone:	Fax:
Email:	Website:

1.4 If different from above, please give the mailing address for correspondence:	
Street / PO Box / RD#:	
Town / City / Area:	Postcode:

1.5 What is the name of the licensee of your service?	
1.6 What is the name of the contact person within your service who will deal with this application and correspondence relating to it? The person named here must be authorised to answer queries and to sign the paperwork relating to this application.	
1.7 What is the position of the contact person within your service?	

1.8 What type of service is your service?	<i>Please mark one box:</i>
Education & care service	
Kindergarten (full day / sessional)	
Home based network	
Playcentre	
Kōhanga Reo	
Correspondence School	
Other (please specify):	

SECTION 2: CURRENT APPROACHES AND CAPABILITY

2.1 Write a statement that describes the understanding of learning that underpins programmes in your service. Give us some examples that demonstrate how your approach to children's learning has been successful for children in your service and their families.

(2 pages maximum please)

2.2 Describe the experience your service has had with ICT to date and the capability of management and/or educators to use ICT to support learning.

(2 pages maximum please)

2.3 Provide 2 to 3 examples of how your service has networked with other services, schools, community and/or facilitators. Describe the nature of the networking and what impact each example has for building capability and enhancing children's learning and outline key challenges experienced in networking.

(2 pages maximum please)

2.4 Describe your service's capability regarding key factors for successful participation in the ECE ICT Professional Learning Programme. This may include factors such as: reputation for effective practice, leadership, commitment of management and teaching staff, time to meet, stability of staffing, understanding of the role of ICT in learning, ability to engage in action research, ability to document, report and disseminate outcomes from the programme, capability to manage change, capability to take on the additional tasks and responsibilities associated with the programme.

(3 pages maximum please)

SECTION 3: ECE ICT PROFESSIONAL LEARNING

3.1 What are the key capability outcomes that your service plans to achieve from the ICT ECE Professional Learning programme?

(2 pages maximum please)

3.2 How will your service make sure that the capabilities developed and implemented by involvement in this programme are sustainable in your service once the pilot is completed?

(1 page maximum please)

3.3 How will your service further develop ICT capability once the programme is completed?

(1 page maximum please)

SECTION 4: ABOUT YOUR INITIATIVE

4.1 Initiative description: Describe in full the initiative your service would implement within the ECE ICT Professional Learning programme and tell us how it fits with your current work and future plans. Why has this particular initiative been selected?

(2 pages maximum please)

4.2 Initiative outcomes: Describe the outcomes expected to be achieved from the initiative regarding ICT capability and children's learning.

(1 page maximum please)

4.3 Indicative planning: As far as possible, set out an indicative plan that shows key objectives and tasks, anticipated timeframes, key roles and responsibilities and monitoring processes for the proposed initiative.

(2 pages maximum please)

4.4 What is the main ICT that will be used in implementing the initiative? Please mark one box only in the 'main' column. If appropriate, please tell us what other ICTs are involved in the initiative and mark as many boxes as apply in the 'involved' column.

ICT	Main	Involved	Currently owned	Purchase planned
(Digital) Still Camera				
(Digital) Video Camera				
Personal Computer				
Internet				
Laptop				
Telephone				
Fax				
Mobile phones				
DVD and/or DVD player				
CD and / or CD player				
Other (please specify):				

4.5 Service input: Tell us about any investment (time, personnel or money) that your ECE service will be making in implementing the initiative and show how these relate to the tasks / requirements of the initiative.

(1 page maximum please)

SECTION 5: ADDITIONAL INFORMATION REQUIRED

5.1 List the groups of people consulted in the preparation of this application (e.g., educators, parents, management, schools, researchers, ECE associations/organisations). Describe the consultation that was undertaken and the outcome of the consultation.

(1 page maximum please)

5.2 Provide the names and contact details of three referees. Referees will be asked how your service demonstrates effective practice and could sustain ICT PD responsibilities for 3 years.

5.3 Any other information relevant to this application?

(1 page maximum please)

5.4 Please submit three copies of this form and three copies of the following additional information:

- A copy of your centre licence or network charter.
- Your current philosophy statement.
- Your most recent Education Review Office Report.
- Evidence that there is regular non-contact time for meetings, including time for staff to meet as a group.
- **One-page** outline of staff professional development for 2005 and Professional Development plans for 2006.

SECTION 6:

6.1 This application must be signed and dated by the person named in Section 1.

Your statement:	Tick here
I have read the guidelines that accompany this form and to the best of my ability understand the commitment involved if my application is successful.	
I have completed all the relevant questions on this form.	
All the information in this application is true and correct.	
If anything changes which could affect this application I will inform the Ministry immediately.	
Management and teaching staff in my service support this application.	
I have the authority to make this application on behalf of the ECE service named in section 1.	

Name (printed)	<input type="text"/>	Signature	<input type="text"/>
Position (if relevant)	<input type="text"/>	Date	<input type="text"/>

APPENDIX 2

ICTS IN ECE SERVICES CASE STUDIES

A'oga Fa'a Samoa

Using ICT to support Samoan language

Puzzle of practice

There are limited Samoan language resources in all areas of education. Creating ICT resources that Samoan children can access and understand to enhance their learning, as well as share with their families, is important for increasing their use of the Samoan language. How can we support children's Samoan language, interest and learning through ICT?

What was investigated?

The teachers involved the children in creating resources in Samoan, including books and DVDs of digital stories and songs. A daily newspaper was created for parents, to record the events of the day using digital photographs and slide shows of the photos were set up on a laptop at the end of the day for children, parents and staff to view. Teachers used software to increase the visual impact of their learning stories. The impact of these initiatives were assessed through analysis of the artefacts created and through reports of case studies. Parents were asked to report back to the centre to record any incidents of their children using ICT.

Conclusions

Through this investigation, teachers and parents were able to see how children's Samoan language developed through their use of ICT and children were able to practice telling their stories in Samoan by recording their voice alongside the slideshow they created using Kid Pix. Staff and children created a number of Samoan language books using ICTs and this has supported and extended the children's confidence with language. Teachers emailed the pictures and books to parents and this has encouraged them to speak Samoan with their children at home, which has also created a stronger interaction with the centre and parents/whānau.

Allenton Kindergarten

A Community Explores Multimodal Literacy

Puzzle of practice

The children had limited access to classroom ICTs and the teachers were often very hands on and in control of the tools and therefore the child's learning. ICTs help to create a rich literacy programme and children should have open access to ICTs in order to develop skills that will ensure their later success in school and provide them with a lasting love of literacy.

What was investigated?

Children were introduced to a variety of ICTs, (hardware and software) and developed a firm understanding of how to use each tool to their best advantage. The teachers gathered data by creating indicators that enabled them to identify how ICTs had enabled the children to share their stories. Four children were observed using ICTs and parents/whānau gave feedback.

Conclusions

Children who have open access to ICTs have a stronger voice and share and revisit their stories both in kindergarten and with the wider community. The children were highly motivated and actively planning their own learning using the ICTs available to enrich their literacy. The principle of tuakana teina (the more experienced teaching the less experienced) was evident, enabling children to guide and support each other with the use of ICTs and igniting further interest in literacy.

Ashburton Baptist Early Learning Centre (over two)

Our Journey into the Information Superhighway: From the Wilderness to the Infinite

Puzzle of practice archaic

The children were using the cameras but little or nothing was being done with the images. Teachers recognised that they needed to value the children's images and use them in ways that were accessible to both children and their parents. They were also conscious that using the children's images might be a way to identify 'what next' for the children.

What was investigated?

Five children, who had shown a particular interest and were competent with using the camera, used their images to create slideshows on DVDs that they could view, review and share their with their family and whānau.

Conclusions

The creation of individual slideshows on DVD had an immediate and positive effect on the children's confidence. Parents and whānau were amazed at what their two year olds could achieve and all children involved have continued to show an interest in using cameras at home.

Ashburton Baptist Early Learning Centre (Preschool)

Our Journey into the Information Superhighway: From the Wilderness to the Infinite

Puzzle of practice

ICTs are now seen as an integral part of society and have an increasing role in learning and in the lives of families. We wanted to ensure that children leaving the centre for school would be capable and confident users of digital technologies.

What was investigated?

A small group of children were observed using ICTs to see what they were showing interest in, what skills they were developing and if they were sharing their skills. The teachers analysed the data together by answering specific questions about each child and applying the collated data with the strands of Te Whāriki to see what patterns emerged.

Conclusions

Children were able to use the ICTs responsibly, safely and confidently, and shared their knowledge with those around them. As the children contributed to each other's learning and the development of how to use the computer they also developed more complex communication skills, turn taking and negotiating skills, learned how to give instructions, praised and supported each other and learned how to better express themselves.

Ashburton Baptist early Learning Centre (Under two)

Our Journey into the Information Superhighway: From the Wilderness to the Infinite

Puzzle of practice

It is important to make connecting links with home, family and whānau for infants and toddlers, as they require a high degree of continuity in their lives. After purchasing new ICT equipment we wanted to determine how we could enhance the family and whānau understanding of the child's learning.

What was investigated?

After a positive response from a family to a trial DVD that was made of their child at the centre, each teacher in the Under Two area selected one child and made a DVD containing images and video clips of the child's experiences. Text explaining the significance of the learning was added and the DVD was sent home with a questionnaire asking the families if their understanding of their child's learning was enhanced by the video presentation.

Conclusions

The parents and whānau indicated that they enjoyed the DVD and the children responded enthusiastically to it, but the parents did not necessarily feel that it enhanced their understanding of the learning. This was in stark contrast to the 'trial' DVD that had been made for one family. The teachers identified the fact that the 'trial' family had had input into the content, as a possible significant difference in the way the DVDs were received. For the teachers, the DVD was a positive experience as it enabled them to clearly see how the children were progressing over the period of time that the video clips were taken, and identified the importance of involving families in assessment.

Atawhai Playcentre

Inspiring and Empowering Parents

Puzzle of practice

Children were leaving the centre at 3 or 4 years of age because parents were not aware of the benefits of Playcentre up to school age. Information about Playcentre was given through verbal introductory talks to families when their children started at the centre. How could we demonstrate the benefits of mixed aged settings and communicate the way our Playcentre philosophy shapes, supports, and enhances children's learning through the use of ICT?

What was investigated?

There were two parts to this research project, firstly a poster promoting the advantages of mixed age settings was created and displayed in the Playcentre and parents completed a questionnaire asking them about the poster. Secondly, team members collected footage of parents actively involved with children. The videos were then given to parents and a questionnaire was created for the parents to complete prior to viewing the video and again to follow up the viewing of the footage. The intention of repeating the questionnaire was to ascertain if watching the video helped parents' understanding of the benefits of children learning alongside their whānau.

Conclusions

The data gathered in response to the poster displayed at the Playcentre indicated that parents better understood the positive values of mixed age sessions, particularly the advantages for older children. The findings from the second part of the project indicated new insights into parents' understandings of children learning alongside their whānau. In addition to the research, ICT use has been incorporated into the programme as a means of extending areas of play and for adult communication. The conclusion is that ICT can play a useful role in the Playcentre, however, it requires a strong financial infrastructure from the outset.

Bayfield Kindergarten

This is What I Can Do!

Puzzle of practice

We were interested in children contributing to their own assessment. We wanted to use "their language rather than our language". We were aware that in much of our assessment it was only the teachers' and parents' voice that was visible and wanted to start with our 2-year-olds to find out more about them.

What was investigated?

2-year-old children were given the opportunity to recall learning from visual photographs, that either they or the teachers had taken, enlarged to A4 size and in black and white. These photos were on display in the kindergarten and also available for the children to carry. The teachers recorded the children's verbal and body language responses to these photographs, and whether they used the experience to take the next learning step.

The second component involved children talking with teachers about what they thought they were good at. This was recorded with a large A4 photograph and children then talked with teachers about why they thought they were good at this experience.

The teacher then analysed why the children thought they were good at something against indicators in Kei Tua o te Pae Book 4 – Children contributing to their own assessment.

Conclusions

The photographs enabled the children to share their thoughts and have also prompted them to reflect on their learning with their peers. Children are now initiating wanting to use the camera to record their learning and the teachers are getting to know the children better through their stories. Children were able to identify what they were good and they used indicators such as 'being fast' and 'having fun' as measures of being good at something. The data also indicated that children were very aware of the need to practice to become good at something. ICT enhanced the process through the exclusiveness of the photograph and its very visual nature.

Bayview Kindergarten

The Story of Empowerment

Puzzle of practice

Literacy and language have always been a strong interest of the children and teachers at Bayview Kindergarten, and it continues to be a big part of the kindergarten culture and programme. We wanted to see how ICT could be used to further enhance and extend oral literacy for the children.

What was investigated?

The teachers made use of a data projector, photos and the Internet as a means of extending children's oral language. Data was collected in a variety of forms, such as learning stories, parent/whānau feedback, photographs and children's voice/video clips. The data was analysed in relation to key oral literacy indicators including children's use of descriptive language, evidence of children's listening and questioning, conversation, instructional language, expressive language and presenting to others.

Conclusions

Displaying the photographs on a large screen created a safe environment allowing children to feel confident to express themselves and ask questions. The process of sharing the photographs has promoted oral literacy through questioning, conversation and expressive descriptions of the images. The use of the Internet (e.g. You Tube) for research purposes gave teachers and children new information that then inspired further oral language. Not all children were interested in using ICTs but for those who were it took them into new areas of engagement within the centre.

Cambridge Early Learning Centre Trust (The Pagoda)

Nothing Ventured, Nothing Gained

Puzzle of practice

Children demonstrated an already established interest in emergent literacy. Families were requesting a greater literacy focus in the programme, which led us to wonder how the capturing and sharing of children's emergent literacy using multimedia could support and strengthen literacy in our programme?

What was investigated?

PhotoStory3, PowerPoint and Flip Video were used to make digital stories. Teachers guided children through the story building process. Completed stories were either emailed home or copied onto a disk. A laptop was also accessible for children to revisit the stories. The value of these stories was analysed in relation to children's use of ICT and the literacy events they generated. Parents' response was also sought.

Conclusions

Photostory3 gave children the opportunity to express and develop their ideas, recognise that the spoken word can also be represented by symbols, making phonological connections with individual letters, predict the sequence of the stories and identify key words. Video clips of the children's learning experiences also helped to develop children's literacy skills by allowing them to revisit and critique their visual, and oral literacy development. Using ICTs also identified additional learning opportunities such as collaboration, improved social skills, turn taking, empowerment and creativity.

Campus Crèche Trust (Preschool)

Who's Teaching Whom? It's Never too Late to Join the ICT Roller Coaster

Puzzle of practice

Although the teaching staff are well qualified in the field of early childhood education, many were not confident using ICTs and most of the resources available were limited to teacher use only. Staff wanted to develop skills and confidence with using ICTs to support their philosophy of an emergent curriculum, enabling children to be autonomous and self-assured learners.

What was investigated?

Quantitative data was collected at the start of the research to assess what assets and skills were already in place and being used effectively. ICTs such as digital microscopes and cameras were made available to children to support spontaneous emerging interests. Teachers developed skills in using the equipment themselves. Evidence of the part played by ICT in building teacher's capability and in facilitating the emergent curriculum for children was highlighted through case studies.

Conclusions

Once the teachers have the skills and knowledge to use ICT tools effectively, they feel more confident to allow the children to pursue their learning interests through the use of ICTs. Children feel empowered that they are able to use the resources to carry out research independently and find answers to questions that they have posed. The digital camera and the digital microscope are particularly useful tools for supporting children's emergent curriculum as they enable children to capture their learning events as they happen and to revisit and reflect on that learning.

Campus Crèche Trust (Toddlers)

Who's Teaching Whom? It's Never too Late to Join the ICT Roller Coaster

Puzzle of practice

Children were not using any type of ICT for exploration. The digital microscope that had been purchased a year ago was locked away in a cupboard, as none of the staff really knew how to use it. Inspired by stories from other centres we wanted to aid the children's natural curiosity and investigation by putting it into use.

What was investigated?

The microscope was positioned in the science area and made available to children everyday. The children were observed using the equipment and data was collected about who initiated using the microscope, whether or not other children were involved or interested, what they were looking at, where it was being used, whether or not a snap shot was taken and whether or not the children viewed the image on the large screen. A second stage of observation looked more specifically at the children's learning and investigation of the natural world.

Conclusions

The data showed that the children started using the digital microscope with assistance from the staff and by the end of the recording period (four months) were using and initiating it by themselves. Children were encouraged to closely inspect the natural environment and living things and this has ensured that they have gained a deeper knowledge about the objects that they

studied. The process of discovery has also improved the children's social and communication skills as they talk to others about their discoveries and learn to take turns and share the equipment. Giving children the opportunity to explore and try new things using ICT has developed their confidence and capabilities allowing them to respond to their questions and ideas.

Campus Crèche Trust (Nursery)

Who's Teaching Whom? It's never too Late to Join the ICT Roller Coaster

Puzzle of practice

Part of our Nursery team mission statement reads, 'We value open communication and reciprocal relationships with whānau, which foster the best learning and nurturing outcomes for all'. This led us to ask, how can we further develop and strengthen communication with families/whānau using ICT?

What was investigated?

ICT was used to create a 'parent voice' template for portfolios and a photo board for children and parents. Data was gathered from semi-formal discussions, children's portfolios, 'parents voice' templates and further communication with parents. The data was analysed relating to the following indicators; sharing information about what was happening for the child away from nursery, sharing interests (through family voices), sharing children's milestones, sharing requirements for their child and making enquiries.

Conclusions

Improving the family/whānau voice template saw a significantly higher proportion of families sharing information about developmental milestones and interests with teachers. This change was put down to the greater visual appeal, teachers talking to each family with suggestions of what could be included and teachers personalising questions to provoke responses. Over the course of the project, parents' interest increased and families became more creative, adding photographs to their 'parent voice' sheets before emailing them back to the centre. Teachers and families became more confident in their own use of ICT.

Eastbourne Barnados Early Learning Centre

From Little Things, Big Things Grow

Puzzle of practice

How can we use ICT to build an inclusive community of learners, enhance teaching practices, reflect on our own learning and work more collaboratively with children and their whānau?

What was investigated?

Children were introduced to a range of ICTs including computers, cameras, digital microscope and software, such as Artrage, Comic Life and Kid Pix. The teachers observed how the children used the ICTs and analysed the data in relation to furthering children's interest through the use of ICT, developing teacher confidence and abilities with ICT and improving the quality of documentation and communication.

Conclusions

Using ICTs has allowed children to contribute to their own learning stories and have input into the direction of their learning. Children supported and tutored other children with using ICT tools, such as the digital camera and shared their interests between home and centre with their friends and family. ICTs have also allowed children to revisit their learning.

The relationship between the teacher and child is more equal and the teachers now often step back to allow the child to share their opinions and interests. Increasing teacher's ICT abilities in little steps has been important to the integration of ICT in the programme for children.

Favona Kindergarten

Oral language strengthened through the use of ICT

Puzzle of practice

Oral literacy is an important area of learning for Favona Kindergarten. The majority of the community of young learners and their families come from non-English speaking backgrounds and therefore English is an additional language. 'In achieving literacy, young children need writing to help them to learn about reading, they need reading to help them learn about writing, and they need oral language to help them learn about both.' (Roskos, Tabors & Lenhart 2009 p3). How can early childhood educators encourage children to further extend their use of oral language through using ICT?

What was investigated?

Surveys were sent home to the parents to find out about their home access to ICTs. Children with varying linguistic skills and abilities using ICTs created digital stories using Kid Pix and Comic Life software. The software allowed the children to add images, text, audio and video to create their stories.

Conclusions

Creating digital stories enhanced and deepened children's storytelling and teachers saw a range of improved learning opportunities including increased vocabulary, expression through story and visual art, documenting interests and making connections with the wider world. The recording of the voice on the digital story was also a helpful tool for teachers as it enabled them to document speech language delay that could be used when making referrals to speech therapists. The creation of these stories also enabled children who were confident using the software to develop leadership skills by tutoring and supporting other children.

Fiordland Kindergarten

Using ICT to Form a Learning Community

Puzzle of practice

Being in an isolated rural community predominantly involved in tourism, conservation, agriculture and fishing meant that our children had many unique experiences to share with others. We wanted to see how we could connect our children, families and communities to the outside world and we wanted the children involved as much as possible in the process. We wanted to find out if we could make connections using ICT tools to share and gain knowledge.

What was investigated?

We trialled the use of email, Skype, and blogging as a means of forging connections with the world beyond the centre. The data was analysed in relation to the four main components of forming a learning community: developing relationships, making some of the work public, making connections between the early childhood setting and home and making connections between the learning community and the world in meaningful ways.

Conclusions

In an isolated community ICT tools can be used to sustain relationships and extend learning opportunities, children can share information to an outside audience and see themselves as teachers as well as learners. The blog supports connections between the learning community and the world in meaningful ways and because it is worldwide it makes the children's work public. Skype has allowed interactions with other kindergartens and has also created links between the centre and the children's family. Over time these ICTs have become part of the kindergarten culture, and are often used together to further build the learning community.

Geraldine Kindergarten

Gael, I'm a Perseverer, Sarah's Not, She's a Risk Taker!

Puzzle of practice

The teaching team reflected on their current assessment practices and found that they didn't truly listen to children's voices when planning. They also realised that although children were generally confident to share their ideas it was at a surface level only. They wanted to build complexity into children's thinking, encourage contribution and allow children to lead their own learning. The particular area of focus that they wanted to develop was allowing the child's voice to be more visible. How can we support children to think about their thinking in relation to self-assessment in an ICT related context?

What was investigated?

Through the local high school, the centre was introduced to the 16 Habits of Mind framework (Costa 2000) ICTs (such as digital cameras, educational computer games and Skype) were used to encourage and support children's metacognition. Children learnt to discuss and question their own progress in relation to particular Habits of Mind. There was no specific time period, number of children or specific ICT tools used, it was the shift in pedagogy and how the children used the ICT tools to remain engaged so that conversations developed that was the focus of the research.

Conclusions

Skyping was a tool that encouraged collaboration and allowed children to articulate their ideas confidently and gave assurance to children who were more comfortable to share their ideas with a screen in front of them rather than face-to-face. The ICT tools also allowed children to share their thinking and individuals felt confident to share their ideas and to respond to questions from the teachers in a creative and confident manner. The children were keen to take photographs of times when learning had taken place so that they could share their learning with their peers, family and whānau.

Grasslands Kindergarten

Parent Engagement Through ICT

Puzzle of practice

Engagement of families in children's learning and development is critical to life long learning. The challenge was to find a tool that was efficient, effective, user friendly in order to engage parents, extended whānau and the wider community in children's learning and development.

What was investigated?

Twelve children and their parents/whānau were selected randomly to participate in the research project. Each of the children were involved in the construction of their own individual blog (e-portfolio) that they and their family/whānau could access to add information, such as comments, pictures, stories and videos. Six of the parents involved were given one-to-one tuition on using the blogging website and were issued with a blogging booklet for support. The remaining six parents were only issued with a blogging booklet.

Conclusions

Creating individual e-portfolios for each child enables parents to contribute to their children's learning and allows them to share information from home. This strengthens partnerships between the child, parents/whānau and teachers. To get the most out of this, the parents need to be supported and have an understanding of how this benefits their child. The children have also benefitted from blogging as they are able to share their documented learning journeys with their peers, in small groups, with their teachers, with their parents and with the wider community, resulting in a more collaborative learning environment and strengthening the relationship between the children's home and the kindergarten.

Greenhithe Kindergarten

I Typed Out My Story All By Myself. Aren't I Clever?

Puzzle of practice

To integrate ICT the teachers wanted the children to understand the purpose of the technology. They wanted to develop the children's competency and confidence with ICT so children could use these tools to assist them in their own learning and research. ICT could then enable the children to contribute to their own self-assessment and goal setting for future learning outcomes. How can children contribute to the assessment of their learning through ICT?

What was investigated?

The teachers introduced digital microscopes and programmes such as iMovie, Comic Life and I Can Animate. They used a range of self-assessment indicators based on Book 4 of Kei Tua o Te Pae and looked at the ways in which various ICTs contributed to or made visible these indicators. Data was taken from observations, children's voice, parent/whānau voice, teacher voice and the children's work. Two children with existing high levels of skills in particular ICTs were selected as detailed case studies

Conclusions

As ICT was integrated into the kindergarten curriculum, children became engaged and active participants, using ICT tools to enhance their learning. As children's confidence grew, ICT s, in particular Comic Life software, allowed the children to display their learning and assess their future goals for learning. Comic Life stories gave value to the learning and opportunities to self-assess and to set new goals. Teachers noticed as the children's confidence grew, their use of ICT media became more complex and they showed understanding of the purpose of technology. The role of teachers shifted to one of facilitator as competence of children was recognised.

Greenwood Kindergarten

Let's Grow Together

Puzzle of practice

There had been a developing focus on ICT within the kindergarten before this programme, due to the interest and skills of the head teacher in this area. Exploratory work making movies of important events within the centre programme led the teaching team to consider the possible benefits of ICT to encourage community involvement within the kindergarten.

What was investigated?

A kindergarten blog was set up that allowed the children to share examples of their learning including voice samples, photographs, audio clips, video images of children's work and play. Surveys were used on three occasions to gather data from families about where they gain information from in order to find out about their child's learning and progression at the kindergarten. The first survey (a paper survey) was issued before the blog went live, the second and third survey (both online surveys) were completed some months later in sequence.

Conclusions

Throughout the project parents relied on various methods to gain information about their child's learning, including profile books, contact with the teacher and directly from their child. The blog became another means for children, whānau and teachers to access and share information about the children's learning and development. Use increased over the course of the research. Through the project, teachers saw the benefits of giving over control of the equipment to the children, prompted by reflection and observation.

Halfway Bush Kindergarten

Children Capturing Their World Through Digital Photography

Puzzle of practice

Teachers were using a digital camera and the children were viewing the images but were not experiencing the process of taking the photographs. We wanted all children to use ICT and wondered if this would be feasible in a mixed aged setting with children 2-5years.

What was investigated?

We made the digital cameras more accessible to all children and introduced strategies that supported the safe use of the camera. Later on we encouraged children to discuss their images and the works of known photographers as a step towards evaluating what makes a 'good' photograph. We instigated environmental and teaching changes and gathered qualitative data in the form of photographs, video, narratives and children's thoughts and ideas. This was later analysed by the team.

Conclusions

Teacher's found that having lanyards on the cameras, hooks at children's level and teaching children to use the camera and the functions of the camera supported all children using the camera. Giving children independent access to the camera empowered them to take control of their own learning. Teachers began to work at the child's pace and not the teacher's expectations of that pace. The children were able to take photographs of their interests and share them with their peers. As children became more confident using the cameras they supported and tutored other children. Children took the cameras home and brought the images into kindergarten to share with the other children. The team reflected upon teacher expectations and child expectations of what a "good" photo was. Photo galleries and discussing what they liked or didn't in photographs supported children evaluating their photographs.

Jonathan Rhodes Kindergarten

Multiple Perspectives on Problem Solving

Puzzle of practice

Problem solving is a key attribute of a 21st century learner. The centre wanted to learn more about how children were problem solving and in what situations they were encountering problems. They also wanted to find out if video made problem solving visible to parents and children. Would using video to capture children's daily work capture new information about children's problem solving?

What was investigated?

10 children were selected at random and videoed while involved in learning through play. Teachers viewed the video collaboratively looking at what problem solving was occurring. One teacher then viewed the video with the child giving them the opportunity to revisit the experience and record their reflections. Parents were then asked to view the video with their child and were asked to comment on their child's problem solving. Teachers analysed the data in terms of the visibility of problem solving using video as the capturing tool.

Conclusions

Filming children made problem solving visible for teachers but not for parents or children. The video allowed for accurate and collaborative revisits for teachers to pick up on problem solving that might not have been seen in the teachable moment. The video captured the child's voice and demonstrated their authentic intention. This was particularly true of social problem solving strategies and strategies used by children with English as an additional language. Videos were shared with parents and were also an excellent tool for teachers' own reflective practice, allowing them to develop and improve their teaching strategies to support problem solving in the programme.

Kew Kindergarten

The Ripple Effect

Puzzle of practice

We noticed that a number of our children had some difficulties with speech and language. Language gives us a way of reflecting on our thinking and talking about our ideas gives us greater control over our thinking. As teachers we need to have as many strategies as possible to support children to develop communication skills. Maybe technology is one of those strategies. This led us to ask, how can we increase and enrich children's oral language through the use of technology?

What was investigated?

Initially we trialled an interactive white board so that large-scale pictures could be shown to children to encourage discussion, however, problems with light and position meant that it was not successful. We then introduced the children to Photostory 3 and involved them in creating stories and recording their voice for slideshows however, the children found the microphone intimidating and conversation was inhibited. We then introduced the digital microscope to the children so that they could research and find out about things that interested them in order to create new language opportunities. We also created a centre blog to display children's learning and enhance relationships with centre families.

Conclusions

The digital microscope was an effective tool that increased children's observational skills and helped them to develop visual, mathematical and descriptive language. The centre blog informed parents and whānau about their child's learning and pictures allowed parents to sustain conversations about learning with their child at home. Videoing interactions between teachers and children highlighted that too many questions were off putting for children. As a result, teachers used more prompts and allowed children more time to think about what they are saying to develop their oral language.

Kids at Play Childcare Centre

Making Learning Visible

Puzzle of Practice

How can we deepen our knowledge of the components of children's learning, dispositions, skills and knowledge and how can ICT support this learning and make it visible for parents/whānau and the wider community?

What was investigated?

The centre used email to send newsletters, set up wall displays of children's experiences (emergent curriculum) and increased the visual component in learning stories. Drawing on evidence from these and also a survey of parents' feedback, they identified ways in which ICT helped to inform parents of their children's learning by focusing on communication, contribution and collaboration.

Conclusions

The sending of newsletters via email to parents was successful and offered opportunities for communication between the centre and parents and also opened the door for contribution and collaboration as parents often responded to the email newsletters with requests and ideas that enabled them to be further involved with their child's learning.

The wall displays were regarded as important for the children's learning by the parents and helpful for demonstrating what their child had learned. The display allowed parents to contribute to 'sharing time' with the child and allowed for collaboration about the displays that were exhibited.

Home contact books allow children to store and revisit their work and create dialogue between parents and children. The book communicates to parents their child's participation in the programme and the parents are invited to contribute to the books at any time. This also allows for

collaboration with the parents, as children can take the camera to their families and bring the images back to the centre to show to the other children.

Kids Domain Early Learning Centre

Troubling Teacher Identity

Puzzle of practice

How do children and adults understand themselves and how can collective storytelling using ICT be used to support this so that lived experiences might inform teachers' work with children and their whānau in the future?

What was investigated?

Teachers investigated digital story telling using the downloadable software programme Photostory 3. The teachers first made and presented their own individual stories. This enabled them to learn how to use the ICTs and to discover more about their colleagues. Following on from this teachers introduced Photo Story 3 to children who then independently created their own stories to take home on DVD. A workshop was held for parents where the children's digital stories were presented and the parents were invited to create their own stories also. Data indicating the impact of these digital stories were gathered using video, reflective journals, blogs, emails and records of group discussions and team meetings.

Conclusions

Sharing stories about lived childhood experiences has resulted in a shift in thinking and practice for teachers that in turn have resulted in more positive learning outcomes for children. Equipment has become more accessible and children now make their own decisions about how, what and when they use ICTs. The sense of trust that the teachers now have in the children has allowed for a more collaborative approach between teachers and children when planning for learning and development. The parent/whānau workshop on digital story telling has increased the ways in which the families are communicating with the centre and contributing to their children's stories.

KIDSPACE Quality Early Education Centre

From Fear to Nearly There

Puzzle of practice

Baseline data collected at the beginning of ECE ICT PL showed that meaningful conversations with whānau were happening regularly. However, we wanted to deepen teacher – whānau interactions and research other avenues where extended family and whānau could gain knowledge about their child's learning and development. We asked what impact would developing a KIDSPACE blog have on enhancing our partnership with whānau?

What was investigated?

We built our blogging capacity by starting with a teacher only blog. Finding that manageable, we consulted families and as a result created a whānau blog that records events happening at the centre as well as more general information. The effectiveness of this was measured against a set of indicators. Data was gathered from surveys and questionnaires to teachers and whānau both before and after the set up of a centre blog. Informal conversations with whānau were also logged and later used in the analysis.

Conclusions

The blog has begun to open up communication between the centre and home and allowed whānau to share experiences that their child was having at home, facilitating the teachers to plan accordingly for the child's interests. Children were also accessing the blog from home and their whānau felt that this experience connected them with their children's learning experiences, as they were able to talk about what had happened that day. The blog was a particularly useful tool for whānau who were unable to visit the centre as it created a platform that gave them an insight into their child's learning and progress. Teachers' skill in responding to learning, particularly group

learning, is showing greater focus and continuity as a result of the access to activities highlighted on the blog.

Kidzfirst Children's Hospital: Medical Care Unit

Supporting Children's and Families' Learning in Hospital Through ICT

Puzzle of practice

Kidzfirst Children's Hospital: Medical Care Unit provides hospital based early childhood services for young children who have chronic or life limiting illnesses, respiratory illness, and renal and skin conditions. A philosophy of family-centred care is an essential principle of service delivery. Though observation educators had identified that ICT (video games) was a tool that engaged families with their children while at the unit. We wanted to further explore how ICT could be utilised to support children and families' learning in hospital.

What was investigated?

A DVD was created to support the transition for parents and their child leaving the neonatal unit. Parents were asked for feedback reflecting on the informative value of the DVD prior to leaving hospital. In addition, PhotoStory3 software was used to create a resource showing the environment and equipment that children could expect to experience while in hospital. Children and families were given access to this through a computer in the designated activity room. The team recorded how the ICT equipment was utilised by staff, children and their families. Educators monitored their own confidence in using ICT.

Conclusions

The results of the analysis indicate that ICT is a tool that has significant potential to be a communication resource for children, families and staff in hospital. There is also further potential for ICT tools to assist children to construct strategies to manage events in hospital and recognise their own strengths. ICTs in the hospital strengthened communications between children and their families through creating digital stories and memory books that allowed the children to share their experiences with their family. The transition DVD, accompanied by a transition visit helped parents prepare for procedures that their child may have to undergo in future.

Kidzfirst Kindergarten (Riccarton)

Making Learning Through Play Visible

Puzzle of practice

When a family transitions into kindergarten, much of the focus is on completing management bureaucracy, sharing the child's learning through play was often overlooked. We realised that the possibilities to share the children's learning using ICTs was accessible and the learning stories and profile books were an appropriate part of the children's learning to celebrate through sharing with the family and whānau.

What was investigated?

There were two research components to this project, firstly, the centre created a short DVD that informed parents of the learning that takes place in the kindergarten and this also helped them to understand the learning that is demonstrated in the children's profile books. Six families were given a copy of the DVD and a questionnaire to complete. The completed questionnaires were returned and the data was divided into four areas, play, skills developed, curriculum/context and transitions. The second element of research involved creating a photo story of a child participating in learning at the centre, the story was copied onto a DVD and given to six parents along with a questionnaire and the results were collated into four key areas, play, parents linking play and learning, impact of the photo story for the child and transition.

Conclusions

The DVDs were an excellent tool that allowed families to have a greater understanding of how important play is in the early years and enabled them to see how their child learns whilst at

kindergarten. Parent's feedback indicated that they could see how their child develops key skills through play and that this is an effective method of learning.

Kidsfirst Kindergarten (Trengrrove)

Nothing Short of Amazing

Puzzle of practice

Recent changes in early childhood education opportunities and the growth in ECE facilities available have provided a wider range of choice for families. The consequence of this is that there are fewer children on the waiting list and the trend to enrol children at a younger starting age has become firmly established. In what ways can the use of ICT be extended to facilitate the transition into kindergarten?

What was investigated?

The project was organized into two phases; the first involved a group of six children and their parents who together wrote a welcome story including photographs and narrative using the voice of the parents. Each of the children took their welcome story home and shared it with their family and whānau. The second phase of the project involved issuing another group of six children and their parents with a digital camera to take home so that they could take photographs of people, places and objects that were significant to the child. On return to kindergarten the teacher helped the children to access their photographs and create slideshows that the children were able to look at. The parents of both groups of children completed questionnaires to determine how successful these activities were in helping to contribute to a positive transition into kindergarten.

Conclusions

The results of this research indicated that ICT is not only a powerful tool that supports children's learning but can also contribute positively to a child's transition into kindergarten and is indicated in the outcomes below:

- ICT was particularly helpful for children who had initial difficulties settling. For children who were confident from the start it had little impact.
- Children who were reliant on non-verbal communication because they were not confident speakers of English benefited from having photos of familiar artifacts of importance to them.
- Closer connections that developed between the teachers and families during this process assisted the teachers to gain cultural awareness and build meaningful relationships with children.
- Use of ICT reassured parents that their child was settled and enjoying kindergarten.
- Teachers had an opportunity through the photos to become more familiar with the child and their family interests. This opened the door for lots of in-depth communication and getting to know them on a level that may never have otherwise been achieved.

Kiwicare Preschool

Strengthening links between home and centre using ICT

Puzzle of practice

Due to the multicultural community in the local area, many of the families are from non-English speaking backgrounds. At times it is challenging to exchange information with parents. How can using ICT tools help us to forge better communication between home and centre?

What was investigated?

A combination of methods were used, such as case studies, questionnaires, surveys, interviews, and formal & informal observations, as we investigated different ways of using ICT to reduce barriers in communication between the centre and families. Service trials included putting slideshows on the proACTIV board for children and parents to view and sending pictures home on

CD, DVD and by email where parents had difficulty in understanding the learning stories in written portfolios. Photo stories were also created in the mother tongue for some individual children.

Conclusions

The creation of photo stories helped to boost the self-confidence and self-esteem of the children and the ability to share their photo stories with their parents encouraged them to download the software at home to create photo stories that they could bring to the centre to show other children. This project resulted in some parents actively participating and contributing to the programme, working alongside the teachers to build the links between the centre and home to enhance the children's learning.

Lucknow Kindergarten

A Journey to Authentic Assessment

Puzzle of practice

We became aware that children were seeking to increase their participation in the use of technology. Teachers recognised that previous ICT initiatives involving making digital stories had been initiated and developed largely by teachers. Therefore we wanted to find out what the learning outcomes were when children set their own challenges in documenting the learning using ICT.

What was investigated?

Having increased the ICT equipment available, and observed an increase in numbers of children using ICTs, the teachers decided on a number of areas (indicators) where they thought the addition of ICT used by the children might enhance the experience. They analysed learning stories for examples from each of the areas (indicators) to see if ICTs fostered particular indicators and which ICTs were used most frequently.

Conclusions

Children developed new understandings, skills and became confident to experiment with technology in order to gain their desired results. The more confident children were able to demonstrate leadership skills by tutoring and supporting less confident children. Children became self-assessors of their learning through revisiting what they had documented using ICT. They were able to make decisions of what counted as valuable learning as well as having the ability set their own goals and choose what learning was recorded. While ICTs facilitated revisiting, the role of the teachers promoting such opportunities remained significant also.

Manaia Kindergarten

The Blogging Ripple: Here's My Blog Address, You'll Be Needing This!

Puzzle of practice

ICT is transforming our daily lives and the way that we learn and technology can be used as a method for communicating and sharing ideas. How can we use ICT tools to further facilitate a community of learners and how will this benefit the children and their families? This led us to our research question: How can blogging at Manaia Kindergarten foster closer relationships with various groups within our learning community, and how will this benefit our community of children and their families.

What was investigated?

Initial data collection concentrated on the use of ICTs in the home environment and parents' beliefs about the use of ICT in education. A kindergarten blog was set up that the children, teachers and parents could regularly contribute to. Regular workshops for parents were provided and feedback in the form of surveys and discussions was collected. The analysis of the qualitative data involved creating common indicators that provided evidence for the research.

Conclusions

The blog has become a point of connection between the kindergarten, families, local schools and other early childhood centres both nationally and internationally. This network of blogging relationships continues to enhance and stimulate professional thinking. Children now consider the blog as a natural tool to communicate with the wider world and it is embedded into their thinking along with the digital storytelling that goes with it. The children feel that their learning is valued because they can send home their learning progress to share with others. Parents use the blog as a tool to connect with their children's educational experiences and are able to collaborate by adding comments about their children's work.

Maraeroa Kindergarten

Bringing down the fences: Strengthening and enhancing community.

Puzzle of practice

Rich learning occurs when children are deeply absorbed and involved in play. The immediacy and shared language of visual images is very powerful and offers teachers, children and parents an alternative method of communication. How can digital cameras help us as a community of children, parents, whānau and teachers to strengthen and enhance continuity, community and competence?

What was investigated?

This was an exploratory study that examined the nature of children's experiences with digital cameras and also how this impacted on relationships between the centre and families. Individual children were given cameras to take home or for special events. Data was collected from individual case studies which highlighted different ways cameras could be used effectively.

Conclusions

Digital cameras were significantly motivating for the development of children's social skills. They facilitated collaborative interaction and allowed children to extend one another's skills through peer tutoring. Allowing the children to take the camera home assisted in times of transition as children could carry photographs of their home around with them bridging the gap between the familiar and unfamiliar. This practice also helped show that kindergarten is interested in and committed to valuing and respecting children's home life and the contribution this makes to children's well-being. By extending the use of cameras to children they are empowered to see themselves as competent users of valuable equipment who can be trusted to explore the opportunities available to them with the technology.

Massey Childcare Centre

Using Digital Video to Enhance and Refine Pedagogy

Puzzle of practice

Reflective practice is essential to quality teaching. It is through reflecting that teachers can enhance and refine their teaching pedagogy as it not only provides opportunity to challenge teaching strategies, but also allows teachers to consider how their practice corresponds with their philosophy. How can using ICTs further enhance reflective practice?

What was investigated?

The teaching team used the video function on still cameras to video themselves interacting with a child or group of children and later privately viewed the footage and wrote a personal reflection before sharing that reflection with a colleague. The data gained was then analysed for emerging patterns in teachers' interactions.

Conclusions

The use of video enabled teachers to reflect on their practice in an alternative way and offered the option of viewing their practice several times, presenting the opportunity to reflect on their practice from different perspectives. Teachers' subject knowledge has been further developed and

strengthened as teachers could view how they were using appropriate terminology with the children. Viewing themselves on video allowed teachers to witness that some of their interactions with children were teacher led and they often did not give children enough response time to questions. Using video as a reflective tool has allowed teachers to shift these practices. Teachers reflecting on their own video footage enabled them to engage in a deeper level of critical reflection and they have become more aware of their pedagogy. The videoing encouraged teachers' engagement in professional dialogue with their colleagues and affirmed practice.

Mayfield Kindergarten

Making Movies – Creating Communities

Puzzle of practice

Many families did not have as high a level of involvement in the kindergarten as we would have liked. Parents were not staying on during the session, and there was limited feedback from parents in their children's profile books or verbally after learning stories had gone home. We wanted our families to feel a sense of belonging and we wanted to know how they were feeling about their child's learning because participation is an important feature of kindergarten life. Prior to joining the ECE ICT PL project, we had on occasion made group videos of children's play and felt this may be a vehicle to encourage dialogue. We asked, in what ways will using movies of children's learning episodes strengthen families' relationships with the kindergarten, encourage participation and enhance parent's understanding of their child's learning?

What was investigated?

A group of 6 children who had just started kindergarten were selected and individual movies made up of images and video clips of their learning was created. The photographs and video were sequenced together with titles, transitions and short pieces of text and burned onto a DVD, which was inserted into the back of the child's profile book and sent home with a written narrative and feedback form for the parents. The feedback from parents was analysed and a follow-up interview with a selection of parents was carried out to establish whether the increase in comments we were experiencing was directly related to the making of movies.

Conclusions

There was a significant increase in parent's verbal and written feedback compared to what was happening when we only sent written learning stories home. It was clear from the amount of feedback that making movies was effective in increasing communication, indicating that movies were strengthening relationships with parents. The parents' excitement when they shared how they felt about the movie prompted more discussion particularly about learning. Having these conversations about children's learning has enabled teachers to build relationships with parents quicker than in the past.

Meadowood Community Crèche

PossAbillTies

Puzzle of practice

The centre makes a point of valuing diversity. Our core values were identified as respect, value for individual differences, relationships, fairness and social justice. Influenced by the municipal schools in Reggio Emilia and Carlina Rinaldi with their focus on the child as 'possessor and constructor of rights' we wanted to find ways that we could better support children with special rights through the use of ICT. We wondered if enabling children's experiences to be video-taped and shared with the child, their families and those directly involved with their individual plan would help strengthen understandings and relationships.

What was investigated?

The first created a chronological record of learning (digital diaries) on disc for children with identified learning differences. Later they moved to individual, private blogs. The practice was trialled using case studies of five children. Digital diaries contained photos, video and audio often made using PhotoStory 3 software. Evidence of the effectiveness of these was collected through a

parent/whānau survey, teachers' reflections, parent/whānau verbal and online comments and comments from key support people.

Conclusions

Video proved to be effective in capturing children's achievements and thereby providing a platform for sharing knowledge and interpretation. Blogs enabled parents' easy and immediate access to children's documented experiences. Parents using blogs took responsibility for adding material, making the partnership between centre and families stronger. Giving key support professionals access to digital diaries and blogs enabled dialogue, advice and goal setting to be an ongoing process rather than confined to IP meetings.

Mosgiel Central Kindergarten

A Journey in Supporting Learners to be Confident and Competent 'Online' Digital Citizens

Puzzle of practice

Our curiosities centred around children's thinking and in particular how to deepen thinking. We started with the belief that, for deep learning to occur, teachers needed to move from the traditional view of leading learning themselves to one where children take the lead in their learning. The addition of wireless Internet encouraged us to ask, In what ways can we use online tools to support children's deep learning?

What was investigated?

Online gaming became the focus of our investigation. Children were able to access four online games intended for their age group. Teachers first ensured that cybersafety precautions were taken and then worked alongside children as they played the games. Data was gathered from children's learning stories and documentation was collected from 23 children who used Google toolbar, Google search engine and gaming. Teachers analysed the data looking for indicators of deep learning using Andrew Churches' revised version of Bloom's Taxonomy as a framework.

Conclusions

The online tools empowered children to take the lead in their own learning and supported literacy and numeracy understandings, collaborative relationships between children with their peers and teachers. Online games engaged, motivated and stimulated children whilst also offering them the opportunity to be leaders or experts. The teachers' presence was vitally important as they could make comments, ask questions, point out things, role model and observe.

Nayland Kindergarten

Activity to Engagement: A Visual Art Journey Through an ICT Lens

Puzzle of practice

How can we ensure that children develop the learning and life skills that they need to be self-motivated learners from kindergarten onwards in the 21st century? In a world that is constantly changing creativity and critical thinking have become learning priorities. Literature shows that new technologies have great potential for fostering creative activity. The teachers identified a 'gap' in engagement in the visual arts. This led to the question, how can ICT scaffold children's creativity in the visual arts?

What was investigated?

Teachers rethought their pedagogy around visual arts based on feedback from outsiders, professional readings and discussions (both online and face-to-face). As they undertook deeper investigations within the visual arts arena with children, ICTs (cameras, video, the Internet, slideshows) were used as provocation and to record processes and events and collaborative teacher reflections. The teachers gathered data through surveys, teachers' reflections and case studies of individual children.

Conclusions

Teachers found that taking a more co-constructive approach did not stifle creativity, on the contrary it provided a platform from which to develop depth and complexity in children's learning. Children engaged in more complex art processes over time and many took on the role of a teacher, assisting other children and teachers with creative processes. While the increased complexity could largely be attributed to a change in teachers' beliefs about their role, ICT played a part also. It enabled children to record, revisit, inspire others and transform their art for other purposes such as story telling.

Next Generation Childcare

Riding the ICT Rollercoaster

Puzzle of practice

Although children's learning stories were available, the children's families were not independently accessing them. This led to the question, how can we strengthen levels of reciprocal communication and relationships in our centre for children, whānau, teachers and the wider community through the use of ICT? Would emailing learning stories to parents allow families to contribute to their child's portfolio, communicate with their children and teachers and provide a deeper understanding of their child's learning and development?

What was investigated?

The teachers began by trialling email. Over an eight-week period learning stories were emailed to families, who were encouraged to engage in communication about their child's learning. When this was found to be difficult to manage, parents were surveyed and as a result it was decided to trial online portfolios for each child. Teachers then created a centre blog with private online portfolios (e-portfolios) to upload children's learning stories, photos, voice and video clips. Parents were invited to an evening to learn about how to use the blog.

Conclusions

Children took ownership of their online portfolios and felt empowered being able to share their learning experiences with their peers, family, whānau and the wider community. The children's families enjoy reading about their child's learning experiences and are able to interact fully with their child and their child's friends through the blog. Children, teachers and parents all contributed to the blog by uploading photos or adding comments. Using ICT for storing and sending children's learning stories to parents often elicited a more immediate response. The success of the project relied heavily on the leadership and commitment of staff to be open to new learning.

Onehunga-Cuthbert Kindergarten

ICTs: A tool for self-assessment and goal setting

Puzzle of practice

ICTs can play an important role in empowering children to become self-motivated, independent learners who can assess and extend their own learning. How can we empower children to make use of ICTs as a tool in self-assessment and goal setting? Can we develop strategies that will enable children to safely use the Internet as an educational resource?

What was investigated?

Teachers experimented with creative software (e.g. Kid Pix) that children could use to document their learning and with hardware such as laptops, digital microscopes, cameras and keyboards. They trialled new technologies to further involve families in the learning processes and used the Internet for research with children. An holistic approach to data gathering was taken which included maintaining a learning log, writing reflective journal entries, creating CDs and DVDs that documented children's learning. Questionnaires and surveys were issued to families. The data analysis involved looking at all the evidence collected from these sources for key indicators of empowerment, self-assessment and goal setting.

Conclusions

Using ICT to create and share stories, and to access information has empowered children to become independent learners who are able to reflect and set goals. It also provided opportunities for some children to take on leadership roles amongst their peers. Online resources such as Google Earth, Google Images, You Tube and Flickr brought new perspectives to many learning projects. Teachers were learning alongside the children about ICT and this strengthened the sense of empowerment felt by the children.

Otago University Fulltime Centre

Confident and Competent Children

Puzzle of practice

We wanted children to lead their own learning and self assessment. We wanted them to enquire, document and develop a love of learning through using technology. We believed that as children felt more in control of their learning they would in turn develop an increase in confidence and competence. We also wanted to continue to promote a focus on creativity. This led us to ask, in what ways can we use ICT to support children's confidence and competence through the creative arts?

What was investigated?

Teachers used a variety of ICT in the programme to support children's creativity and they supported children to use the tools themselves. This included the Internet to research children's interests, including popular culture. The children recorded stories using video, PhotoStory 3 and Kid Pix . These were then viewed by the children and in some cases families. Qualitative data was collected from video footage, narrative assessments, parent feedback and anecdotal observations and was analysed in relation to indicators of competence and confidence incorporated into Carr's Dimension of Strength and the ability of ICT to enhance further creative endeavour.

Conclusions

Through the wide range of ICT resources available to them children have developed new ways of researching and finding out about things of interest. ICT supported and enhanced children's confidence and competence in the creative arts by providing models and ideas upon which to base their own work. Open-ended software allowed children to transform photographic images and 'play' with ideas. The Internet provided a valuable means of developing shared understanding between teachers and children especially around popular culture. Through the use of video children were able to create, evaluate and revisit content.

Otatara Kindergarten

A Story of Bicultural Development in a Mainstream Kindergarten

Puzzle of practice

In 2004 we asked ourselves how we, as a predominantly 'Pakeha Kindergarten', could make a true commitment to Te Tiriti O Waitangi. As a result of this we had been strongly influenced by the work of Jenny Ritchie (2003) on whakawhānaungatanga. In particular "to build trusting relationships with whānau by communicating respect, warmth, caring and understanding" (p97). As non-Māori educators in a predominantly non-Māori community we wanted to discover how we could use ICT to strengthen our bicultural development, including te reo.

What was investigated?

Resources developed included books about the local community, a DVD about the philosophy of the centre and a public wiki that aimed to give support, advice, ideas and networking opportunities for teachers committed to bicultural development. In addition, digital books featuring the children's artwork and stories were made, along with DVDs of the children performing dramatised Māori myths. Skype was used to connect with other centres to teach and learn waiata and children watched videos of other Māori myths and legends on YouTube. Data was also gathered from surveys to whānau, learning stories and staff reflections.

Conclusions

The books became a catalyst for relationships between children, teachers and whānau. They provided a vehicle for parents and staff to share their aspirations and the learning they value for children. Evidence suggested that the DVD about the centre given to new families facilitated familiarity with the routines, expectations and general physical environment. The teachers' use of a wiki for information sharing with other teachers was less successful, attracting few responses. This may have been due to the unfamiliarity of wikis by many teachers. The recording of children performing dramatised Māori myths helped highlight how te ao Māori was enacted and valued within the programme.

Peachgrove Kindergarten

Researching the Search Engine

Puzzle of practice

ICT sits alongside and complements all other tools for teaching and learning. How can we implement ICT as a natural part of the learning programme to improve learning outcomes for children? How can the disposition of taking an interest be enhanced by using ICT?

What was investigated?

Teachers first became more familiar with how the Internet worked, ICT terms and the various search engines. They then made the use of the Internet available for children (supported by teachers) as a tool for research when interests and questions arose. Parents were asked whether or not their children used the Internet at home and one third said their children did.

Conclusions

On average the Internet was used as a tool for research four times a day over the duration of the six weeks and recording took place. However, teachers observed that children rarely initiated the use of the Internet for information, or a book for that matter. It was the teachers who did. Once they were using a search engine, children were drawn to the pictures and movies. This often resulted in attention being diverted from the original investigation to whatever was on the screen.

Pukerua Bay Kindergarten

ICT Transforms Wonder: Adding Layers of Complexity to Learning Outcomes

Puzzle of practice

We asked ourselves whether we were really catering for our learners in their 21st century context, a context that included learning through and with ICT. As a team, we were not confident with ICT. Our children had long been keen navigators of the insect world at kindergarten and we thought this would be an area where engagement might be strengthened through using ICT tools. We asked, how does our use of ICT as a teaching and learning tool support, extend and add complexity to our children's understandings about the natural world of flora and fauna?

What was investigated?

ICT tools such as the Internet, digital microscope, Photostory 3, e-books, cameras and video for use by children and teachers were introduced. Data was collected in the form of case studies, and evaluated against a list of signposts of complex learning behaviours.

Conclusions

ICT opens new possibilities of learning and investigation – e.g., displaying investigations using ICT encourages less dedicated naturalists. Because of the multi-faceted nature of ICT (visual, audio, written) there are many ways for children to strengthen understandings. Children develop skills such as communication, collaboration, exploration, reflection and relationship skills through opportunities provided by ICT, including peer tutoring. The ability to revisit documentation allows children time to process their observations and to be able to articulate their newly gained knowledge. Teachers are much more inclined to let children manage the process of documenting

what is important to them in their learning rather than thinking they need to control the process which leads to greater complexity. ICT is not just an adjunct, but has become part of the normal classroom resource where children can access the tools as and when they have something of interest that they wish to investigate.

Rachel Reynolds Kindergarten

I Have the Wings to Fly

Puzzle of practice

We were making a large amount of applications to Group Special Education for help with children's delayed language development. We wanted to improve our children's oral language skills, and engage parents/whānau in their children's learning. We asked how could we create an environment that promotes/fosters oral language using ICT?

What was investigated?

A range of strategies involving ICT were trialled. These included displaying photographs of family outings for children, families/whānau and teachers to talk about, creating photo stories for children to take home to share and discuss with their families/whānau, teaching children to use digital cameras to record their learning experiences, using the digital microscope and screening videos and photographs that the children have made themselves. The data was analysed looking for key indicators of improved oral language.

Conclusions

Children were confident using the digital camera independently and found being trusted with the equipment empowering, many children developed tuakana/teina relationships and this encouraged opportunities for conversation. Creating photo stories gave some children the opportunity to create something that they were proud of, that they were able to share with their peers and family and to have extended conversations about their learning. The display of photographs on the wall was a strategy that worked well for fostering conversation and children and their parents spent a lot of time looking at and talking about the images. No single ICT stood out as promoting oral language better than the others. Success depended more on children's interest in using the tools and teachers' quality of interaction. Videos challenged teachers' assumptions of children's language made teachers aware of strategies that either fostered or stifled interactions.

Rangitoto Kindergarten

ICT – From Fact to Fiction

Puzzle of practice

We believed that meaningful learning occurs, when contexts allow children's curiosities, interests and inquiries to evolve. Therefore, how could we use ICTs to further enhance and harness children's excitement for learning through investigation and exploration? How could we use ICTs to increase children's 'voice' within the programme?

What was investigated?

Children were introduced to the digital cameras and were given the opportunity to experiment with taking photographs. Six children, who showed a keen interest in ICT, were selected and explored the use of the digital camera with Kid Pix software. Once children were demonstrating a confident grasp of using the digital cameras, they were introduced to Comic Life as a means of combining their new skills with a simple format for documenting their experiences. Over time the children were also introduced to the digital microscope and the Internet and were encouraged to use the tools to enhance their learning and curiosity.

Conclusions

Each child connects with ICT in their own personal way, for some it inspires art, music, drama, while for others it supports investigating nature and facts about the world. The Internet encourages

children to search for answers to questions, wonder at the natural world, make discoveries and develop theories. The digital camera provides children with a voice to share and reflect about their interests, perspectives and achievements. Using ICT tools can provide a strong social context. Children work alongside each other supporting and tutoring one another. Creating DVDs of children's experiences has helped to forge strong links with families and they have a greater insight into their children's experiences of learning. It has also given shy or unsettled children a means of gaining confidence within the centre

Riversdale Kindergarten

Can You Hear Me? How We Listened to Our Children's Voices

Puzzle of practice

Learning stories were the primary form of assessment and were mainly written from the teacher's perspective. On some occasions the child's perspective of their learning was visible but critical reflection of the assessment process showed that the real essence of children's thinking was missing. How could we better highlight children's thinking through the use of ICT?

What was investigated?

The team used software programmes such as PowerPoint and PhotoStory3 to create e-books with the children, incorporating the children's photographs and stories. Data was gathered by reading the e-books to the children and any comments they made were recorded and analysed against a set of indicators showing children's thinking.

Conclusions

The children have used their e-books to show that they are able to consider the reader and create an appropriate story for them. The e-books also enhanced the children's vocabulary as they expressed a variety of tenses and descriptive words that were not used in everyday speech. The children were able to revisit their e-book at the centre allowing them to make improvements to their stories, and they were also able to print out their e-books to take home and share them with their families. Seeing children's competence has led teachers to reassess their practice and become more inclusive of children's interests and discoveries.

Rotorua Girls' High School Childcare Trust

E-Portfolios as an Effective Communication Tool in Early Childhood Education

Puzzle of practice

The centre's strategic plan highlighted the integration of ICT as a focus for pursuing further complexities of learning and assessment for children. The philosophy of the centre, based on whakawhaungatanga, emphasised the importance of relationships and connections to children's growing sense of identity. How can the communication between children, parents, whānau, teachers and the wider community be enhanced using ICT?

What was investigated?

Individual e-portfolios were created for seven 'case-study' children to keep a record of their learning and to enable them to share their progress with their family, using a blogging platform. Family and whānau were granted access to the blog and were invited to contribute to their child's e-portfolio by adding photos, videos and comments. Once the teachers were satisfied that the process was sustainable, e-portfolios were made available to all families who wanted them.

Conclusions

The blog further enhanced reciprocal relationships and communication with centre families and children, parents, whānau and teachers regularly contributed to the children's blogs. Parents are able to post stories of events that have happened outside of the centre giving the teachers a deeper understanding of each child. The parents can see what their child has been learning at the centre and can encourage and enhance this learning at home. The children have a clear

understanding of the purpose of the blog and request to include their learning stories, videos and pictures and text so that they can share their progress.

Rototuna Early Education Centre

Bringing the Digital World into Early Childhood Education Through Photo Story 3

Puzzle of practice

Teachers were aware of the importance ICT plays in the lives of children and their families and whānau. They believed that as teachers they had a responsibility to help develop children's levels of confidence in using ICT equipment. It was important to integrate ICT into children's experiences in ways that would enhance their learning. We acknowledged the importance digital documentation has in the lives of children growing up in today's society. In what ways could this be practiced in our centre?

What was investigated?

PhotoStory 3 was the software used. Digital stories of the children's learning interests were developed for the infant and toddlers group, and the kindergarten group. These were replayed at the centre (sometimes projected on a big screen) and sent home for parents to view with their child. A questionnaire was developed to gain feedback about how their child had responded to the photo story. The contribution of the stories to children's learning was highlighted through sets of indicators – different for older and younger age groups.

Conclusions

The implementation of PhotoStory3 into the programme allowed children to develop their own working theories about how they could use the technology when given the time to explore and problem solve. Children displayed how capable and competent they are in using technology as a tool to share their stories with an audience, whilst undertaking multiple roles of publishers, authors and illustrators. Children learnt to think about their thinking and to create. The stories helped to strengthen oral language and could be used as a means to assess language and learning.

Sunshine Kindergarten

ICT- Helping Bridge the Gap

Puzzle of practice

Families with English as an additional language make up nearly half of the families in our centre. Developing relationships with these families can be prolonged and fraught with misunderstandings due to language difficulties. An initial survey showed that the number of these families who contributed to their children's profile books was significantly lower than for other families. This led to our question, how could we support ESOL families' participation through the use of ICT?

What was investigated?

The team created two versions of an orientation DVD using Photostory3, one in English and a second in Mandarin which were made available through the kindergarten information pack and at the local Citizens Advice Bureau. Families viewed the DVD and were then asked to complete a questionnaire about how effective the DVD was. Children also created their own stories using Photostory3 and took these home to share with their families.

Conclusions

ICT helped to bridge the language gap, hastened relationships and increased participation. ESOL children were given a powerful voice and an opportunity to revisit their learning and celebrate it with their families at home. Parents contributed to their children's stories and sent the electronic documents to the wider family elsewhere in the world. Some parents shared their cultural and historical family stories with teachers, to enable their children to create photo stories about their heritage. Some families downloaded Photostory 3 at home and began to create their own stories.

Takapuna Kindergarten

Creating Digital Leaders: Do I just Push the Big Silver Button?

Puzzle of practice

Teachers wondered how integrating ICTs into the curriculum would engage children and if it would appeal to their different learning styles. Would using ICT give children the opportunity to deepen their learning experiences and provide them with a medium to express themselves creatively? This led to the teachers thinking about what teaching strategies would be the most effective for the smooth integration of ICTs as 'natural tools' into the curriculum? What impact would those different strategies have on the children's learning?

What was investigated?

The six teaching strategies that teachers researched and reflected on were – the directive approach, learning alongside, dialogue, exploration, modeling and planning. Teachers observed and reflected on the various teaching strategies and gathered data from a range of sources including teacher's reflective stories and children's learning stories. Teachers used this evidence to clarify the direction for further development.

Conclusions

Teachers found that different teaching strategies worked for different children when integrating ICT, dependent on their prior knowledge. Children who were less experienced or less confident using the ICTs often sat and watched other children as they "modelled" or "learned alongside" teachers using the "directive approach". Confident children were able to "explore" and "learn alongside" others and even became the peer tutors "modelling." The growing knowledge and experience of the teachers opened up further learning opportunities for the children and the ICT tools ensured that the children remained engaged and interested throughout the experience.

Te Rau Oriwa Early Learning Centre

The Children of Today are the Leaders of Tomorrow

Puzzle of practice

We wanted to research and access age appropriate ICT resources that would benefit tamariki, kaiako and whānau through the medium of te reo Māori. Also, to build on teaching, learning and communication where the learning could be implemented at the centre and be extended within the home environment. Our goals led us to ask, how can Kid Pix be used to enhance tamariki learning of te reo and tikanga at Te Rau Oriwa Early Learning Centre?

What was investigated?

We began with a survey to determine access and use of computers in homes. Kaiako were introduced to Kid Pix which they then used with tamariki to create their pepeha, using te reo Māori as much as possible. A hui was held to inform whānau of the Kid Pix programme and the possibilities and learning outcomes that were available, particularly in the learning of te reo Māori. Qualitative data of the impact of Kid Pix was collected in the form of learning stories, teacher reflections, whānau voices and anecdotal observations.

Conclusions

ICT has provided tamariki with a positive, stimulating, active environment, which provides the opportunity for language development and learning the protocols of social interaction. An increase from one word to a simple sentence structure has been observed when tamariki use Kid Pix. However, the computer and software are merely the tools by which to capture the child's interest – the kaiako presence and interactions are the enhancing factor that determines the level and use of te reo Māori. Some children have become tohunga, sharing their expertise in using Kid Pix with their peers. The professional development brought about a significant increase in confidence with ICT amongst kaiako.

Thames Early Child Education Centre

From KFC to ICT: Our 3-Year Journey

Puzzle of practice

We felt it was important to involve the wider community, not just the parents and whānau of our centre as it places the children as valued members and contributors to their community. Therefore we asked how could ICTs be used to enhance and strengthen communication between teachers, parents, children and the wider community?

What was investigated?

A number of approaches to strengthening communication were trialled over three years. These involved the teachers, the children and their families using a variety of ICTs including digital photographs, email, online applications (Skype) and e-portfolios. This was done with three main aims, to make children's learning visible through documentation in their portfolios, sharing teaching and learning experiences through digital portfolios and sharing teaching and learning experiences through e-portfolios.

Conclusions

Children's learning became more visible, particularly to the children themselves, as documentation improved visually because of the ICT. E-portfolios were found to be a particularly effective means of children sharing their centre learning with friends and family. Feedback about learning experiences from parents and whānau occurred more regularly and became more in-depth, which added to the assessment. ICT has extended the ability to connect and establish communication lines, which in turn has supported children's learning. Parents have appreciated developing ICT capability themselves through the centre.

Tots Corner (Babies)

Enriching Pedagogical Documentation Through ICT

Puzzle of practice

For babies and toddlers who are learning to talk, the role of the teacher is to be able to listen and interpret the child's meaning in order to plan and build on their learning and to understand the child's perspective. In what ways can teachers reflect on, interpret and enrich infants and toddlers investigations using ICT?

What was investigated?

Sequences of photographs were taken to record the process of learning. The photographs were displayed as A4 or A5 images on the wall where children could look at them and revisit their experiences. Learning stories were created featuring photographs of the children learning. These learning stories are emailed home and parents are invited to feedback and comment on their child's learning. Teachers used photographs as a focus for collaboration with parents/whānau, to reflect together on the perspective of the child. Four indicators were used to evaluate the outcomes of the ICT for the babies and toddlers, aged 6 months to 2 years.

Conclusions

Portfolios, photographs and the wall documentation were the most valuable ICT tools for children to re-visit their experiences. The children were able to recognise people who were familiar and important to them, inviting verbal and non-verbal dialogue between children with other children and children with teachers. Photographs enabled teachers to engage in a deeper level of reflective dialogue – 'listening with our eyes'. Emailing the learning stories to parents has ensured that teachers and parents are engaged in dialogue and allows the parent to engage with and celebrate their child's learning. ICT can enhance teaching and learning when teachers and communities are willing and able to go from seeing the potential to realising the potential.

Tots Corner (Kiwis)

Enriching Pedagogical Documentation Through ICT

Puzzle of practice

Amongst the most important learning for children aged two and three is developing relationships. Learning to collaborate, negotiate, co-construct knowledge, listen to others and communicate effectively are all skills needed to form lasting relationships. How can we use digital cameras, slideshows, video clips and portfolios to enrich communication between children, teachers and parents?

What was investigated?

Children and teachers used a digital camera to record learning experiences and photographs and short videos were presented as a slideshow on the computer. Teachers analysed and evaluated these forms of documentation for their value in promoting relationships with peers, teachers and families, using 5 indicators. The evidence for analysis was drawn from children's voice, teacher discussions, written discussions and the parents' voice.

Conclusions

Teachers were surprised at the high level of collaboration and communication that occurred when children (aged two and three years) were using ICT. Access to slide shows, photos in portfolios, video clips and digital stories on CD have enabled children to revisit past work, encouraged non-verbal and verbal language and given children the opportunity to both share and listen to others. ICT appears to be another valuable tool for encouraging and supporting teachers and parents as they communicate together.

Tots Corner (Tuis)

Enriching Pedagogical Documentation Through ICT

Puzzle of practice

Teachers wondered if using ICT could enhance the documentation of their long-term investigations. They asked how could we use ICT as a provocation to engage in dialogue with children providing opportunities for revisiting, reflection and interpreting for their meaning making?

What was investigated?

Photographs, video clips, a data projector, and presentation software (Keynote) were utilised as a provocation for children to revisit, rethink and confront their working theories as they explored areas of interest. The teachers used five areas where the value of ICT as a provocation could be evaluated; revisiting past work; children are engaged together in dialogue; children and teachers are engaged together in dialogue; teachers engaging together in critical reflection on their role in the teaching and learning experience; parents/whānau/community engaged in dialogue about learning.

Conclusions

When children revisited previous learning moments they were able to recall on past experiences and this provided a catalyst in which further explorations could be carried out, allowing the children opportunity to plan and extend their own learning. As children and teachers reflected on previous work, layers of knowledge and deeper understandings developed. Co-constructed documentation using Keynote assisted with continuity and momentum in a context where all teachers work part-time.

Waiuku Kindergarten

More Than a School Visit: ICTs Facilitating the Transition from Kindergarten to School

Puzzle of practice

The centre was operating a programme for children who were almost five years of age, which appeared to be popular with parents. This concentrated on the acquisition of skills such as name writing and only included children who were nearing school age. The teachers began to question this practice and how it fitted within the principles of Te Whāriki and inclusiveness. As part of this review we asked, how can ICT be used to facilitate the children's transition to school programme? The kindergarten feeds into ten schools.

What was investigated?

Initially, baseline data about what individual children knew about school was collected. Teachers then trialled a series of initiatives including photographic booklets showcasing school routines and environments for different schools, corkboards displaying photos of children and the school they were attending, using Skype to connect with a school class and finally a blog that documented children's school visits. The impact of each was analysed using audio clips, photographs, video clips, teacher's reflections, learning stories, children's comments, email,

Conclusions

The use of ICTs to make accessible resources has meant that younger children have picked up transition information through their older peers. The use of ICT has promoted genuine informed communication with families around transition to school as families have used the resources made. Parents have keenly read and contributed to the blog about school visits and their child's first days at school. Using Skype to connect with a school was less easy to sustain than other methods trialled because of timetabling issues. Parents were also less involved with Skype. Transitions can be helped by ICT but finally it is the attitude of teachers in the school (and centre) that determines the strength and nature of the transition processes.

Yendarra Kindergarten

Te Pou Herenga Tangata – Te Pou Herenga Waka

Puzzle of practice

Creating an environment that is based upon kaupapa Māori is a priority for the teachers and the whānau of the children who attend the centre. Teachers wanted to take the opportunity to examine more closely the bi-cultural nature of Te Whāriki through the use of ICT and wondered how they could use ICT to invest in each Māori child the ability to exercise their own rangatiratanga?

What was investigated?

Four supporting Pou (te reo, kaitiakitanga, nga kupu tuku iho and tikanga) were chosen that encompass strategic areas for children to contribute to the retention and growth of te ao Māori. Teachers developed a range of resources (sequence cards, books, DVD), alongside the children, utilising ICTs. These resources supported the processes of understanding the pou and ensured that they retained te reo and tikanga in the context of their own lives. Evidence was gathered from a range of sources and three indicators were used to direct the analysis, ako, whānaungatanga and manākitanga.

Conclusions

The ICT resources developed to increase the use of te reo have become an integral part of the kindergarten environment and are used frequently by the children – both Māori and non-Māori – and their whānau. Digital pepeha books proved successful in giving children and their whānau the opportunity to learn and share their pepeha using the tradition of storytelling. Using ICTs in the context of constructing pepeha was a departure from the traditional approach (reciting according to a set structure). Children became the 'rangitira in the process', creating and telling their pepeha by drawing on what had meaning for them.