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Te Kura Toi Tangata

Wilf Malcolm Institute of Educational Research
Te Putahi Rangahau Matauranga a Wilf Malcolm

THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

ROSKILL SOUTH KINDERGARTEN
CENTRE OF INNOVATION 2003-2006
FINAL RESEARCH REPORT

Centres of Innovation
EARLY CHILDHOOD EDUCATION

Strengthening learning and teaching using ICT

Karen Ramsey, Jane Breen,

Jacqui Sturm, Wendy Lee and

Margaret Carr

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Contents

Roskill South Kindergarten Centre of Innovation Project
Executive Summary

A number of outcomes from the Roskill South Kindergarten Centre of Innovation action research project are set out in this Report. The project asked questions about the integration of ICT into everyday learning and teaching in a kindergarten sited in a multicultural and multilingual community. What were the outcomes for children and families? What were some of the key features of such an integration and what difference did it make for teachers?

ICT added another (predominantly visual) mode of communication and representation for children who have not yet learned to read and write. It enabled them to 'read' and revisit their learning, strengthening their identities as confident and competent learners. It also enabled them to develop their story-telling abilities and dispositions by telling visual stories (often about their own or about other children's learning) with spoken or dictated commentary. Children added ICT to their communication repertoire, and it enhanced their dispositions to use other modes: to speak, write and draw. ICT provided a 'way in' to communicate in a range of modes, in a new place, and a motivation to participate. ICT added excitement and interest to the learning in many areas and topics. It also added ways in which children could take responsibility in the learning and teaching process, and children took up these opportunities with enthusiasm.

In a community where many families have little or no English, or where English is an additional language, ICT provided a common language for families and children to communicate with each other and with teachers. It provided a transitional or bridging language, as well as an additional (life-long) language. Innovative use of ICT in this project widened the participating community to include families and whānau in a mutual learning and teaching endeavour with the teachers and the children. Children and families became teachers as well.

The integration at Roskill South Kindergarten of ICT and Te Whāriki with Learning Stories has been a powerful combination for enhancing learning within all five strands of Te Whāriki. The combination developed a culture in which each of the children was recognised as a competent child by the teachers, by the children themselves, and by the families. Children could use the digital camera to prepare their own Learning Stories, and they could explain their learning to others in slide shows and powerpoints. Te Whāriki's vision, principles, and strands provided the framework for the aims of the learning and teaching. Te Whāriki was foregrounded, with ICT as a mediating tool. At the same time, children families and teachers were developing considerable ICT knowledge and skill, inside meaningful enterprises.

The project revealed the inestimable value of teachers having time for reflection and discussion about the children's learning and their own teaching. The project did not fund extra everyday time, but the project demands for the teachers to present their views locally (at visitors' days), nationally and internationally (at conferences and workshops) – in

almost 100 presentations and publications over the three years - provided the impetus for managing their time and technology in order to reflect on their practice. The project also provided opportunities for teachers to reflect on their practice with outside researchers, or 'critical friends'. Both of these opportunities for discussion (the everyday spaces found by managing their time differently, and the special spaces provided by the project), in the view of the research team, meant that they became better teachers: noticing recognising and responding to the children's learning in more thoughtful, educational, intuitive, and often innovative ways. The teachers also reported that they became more expert at educational discussion and at responding to questions and provocations about their practice.

One of the key findings of this project is that adding more technology - cameras and laptops in particular – on its own made this work possible but not probable. The early childhood centre began to be seen as a network or system in which teaching and learning are distributed across: a range of artefacts (including a curriculum and assessment formats), routines, the location of power or expertise (including the image of the child and the image of a teacher), and family participation. The key aim of the project, the strengthening of children's learning using ICT, became probable only when all these 'mediating devices' were 'in synch' or working together with the same principles and vision in mind. Hence, this final report describes the work using a systems framework.

ROSKILL SOUTH KINDERGARTEN
CENTRE OF INNOVATION 2003-2006

Chapter one
Introduction

This Report describes and analyses how three teachers in a New Zealand kindergarten have integrated ICT into their teaching and learning in innovative and thoughtful ways over a number of years.

ICT AND EARLY CHILDHOOD AND AOTEAROA NEW ZEALAND

The topic of ICTs in the early years is not without controversy, and we are mindful of the debates about: the passive nature of media-based interaction, the replacement of play-based activities by pre-set computer programmes, and the non-social aspects of ICT involvement. These concerns are reasonable and sensible. However, early childhood has a good track record in this area.

> "...there is increasing evidence that some of the most exciting and appropriate uses of ICT are to be found in early years settings, where there is less pressure to meet strict targets and more opportunities to experiment with child-centred practice…"[1]

Rachel Bolstad, in her 2004 review of the literature on ICTs in early childhood education (p.77) outlines two areas for further New Zealand research:
How do early childhood educators in New Zealand make the transition from non-use or uncertain use of ICT (in their practice), to using ICT to enrich the early childhood learning environment?
In early childhood education settings where "ICT is enriching the learning environment", how does this enriched learning environment impact on or enhance children's learning and development?

This project will contribute to the literature in the second of these areas, although it may provide some ideas for entry points in the first area.

The national early childhood curriculum, Te Whāriki, with learning aims and learning-and-teaching principles, has been fundamental to this project and its purpose. Without Te Whāriki, the purpose of introducing ICTs might be as early technical skills of a technological 'subject' that will only be useful in the real world later, or as a means towards acquiring print literacy. Such purposes can encourage passive, pre-set, and isolate use of ICTs. The central purpose of ICT in New Zealand early childhood centres, however, is belonging, well-being, exploration, communication and contribution. It is linked to the children's purposes and interests. And the principles of pedagogy that must apply are interactive relationships, a view of curriculum as holistic, the involvement of

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[1] Brooker (2003) p.261 in Bolstad, R. (2004). *The role and potential of ICT in early childhood education. A review of New Zealand and international literature.* A report prepared for the Ministry of Education. Wellington: NZCER p.3. This report is a very useful resource for discussions of ICT in ECE.

families whānau and community, and empowerment. Along the way, young children are acquiring technical ICT skills and may acquire some print literacy; these are by-products of the central purpose. Iram and John Siraj–Blatchford make similar comments about the need for an 'emergent and integrated ICT curriculum model' that supports the development of '*communication and collaboration*, children *learning to learn* (metacognition), and creativity'[2].

This is not just a 'now' or 'later' early childhood curriculum discussion. As Carmen Luke and Allan Luke[3] comment, it is about fundamentally new discourses where, for some people and some nations, new communities of practice that use ICT threaten

> "*place-bound and normative interpretive communities whose boundaries, economies and training regimes seem at risk and suddenly permeable*". (p.104)

and in the wider scheme of things:

> "*Life-long learning, horizontal occupational mobility, generic textual and semiotic skills that can be quickly re-interpreted and cross applied to a variety of jobs – these are among the new generational scenarios*". (p.109)

Writing about early literacy, Luke and Luke (p.106) suggest that in some countries there are responses to new and powerful discourses of deficit (about unruly technologically-mediated adolescents) which include

> "*an attempt to remediate early childhood, through a redoubled effort to restore the sensibilities, codes and practices of print monoculture via early intervention programmes*".

This has *not* been a response in Aotearoa New Zealand, where policy has assigned a place within Te Whāriki for print literacy (reading and writing), while the national Early Childhood ICT Strategy has also recognised and affirmed the place for ICTs within the implementation of Te Whāriki. In both cases (print literacy and ICT), Te Whāriki is the front frame, and print literacy and ICT find their places as two of many useful resources for children and teachers who are developing working theories and dispositions for life long learning: belonging, wellbeing, exploration, communication and collaboration.

We hope that the experience of Roskill South Kindergarten will describe the development of innovative strategies for turning this policy into practice: integrating ICTs with the implementation of Te Whāriki. It is also a case study of how ICTs can be empowering, creative, interactive, and safe for children in early childhood centres and classrooms. The Roskill South Kindergarten project is about integrating ICTs into a curriculum for

> "*competent and confident learners and communicators, healthy in mind body and spirit, secure in their sense of belonging and in the knowledge that they make a valued contribution to society*".[4]

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[2] Siraj-Blatchford, I. & Siraj-Blatchford J. (2006). *A guide to developing the ICT curriculum for early childhood*. Stoke on Trent: Trentham Books. Quote on pp.9-10, their italics.

[3] Luke, A. & Luke, C (2001). Adolescence lost/childhood regained: on early intervention and the emergence of the techno-subject. *Journal of early childhood literacy* 1, 1 pp.91-120.

[4] Ministry of Education (1996). *Te Whāriki: He Whāriki mātauranga mō ngā mokopuna o Aotearoa. Early childhood curriculum*. Wellington: Learning Media.

PEDAGOGY AND THEORY BEFORE THE PROJECT

Pedagogy at Roskill South Kindergarten

Four assumptions (and core values) about teaching and learning provided guidance for the teachers' practice before they became a Centre of Innovation.

> Outcomes and processes are 'holistic' in the sense that *learning outcomes* integrate the physical, emotional, intellectual and social in sociocultural strands about participation: belonging, well-being, exploration, communication and contribution. Furthermore, outcomes are also processes or participation practices.
> Learning is about reciprocal and responsive relationships with people places and things: *learning processes* are distributed across other people, cultural tools and practices.
> Family and community are integral to curriculum.
> A fundamental aim for early childhood education is to empower children and families so that they will be able to take some control over their lives and for the children to develop life-long learning strategies and dispositions. Children learn to recognise, competently use, and orchestrate, the supports they will need.

These principles are the English parallels to kotahitanga, ngā hononga, whānau tangata, and whakamana[5]. They provided a significant starting point for this project, and this Report. Being holistic means that children learning *with* ICT is foregrounded (although they are 'learning ICT' at the same time). Being about relationships means that ICT is just one aspect of the supporting structure or network that is developing to mediate the learning, and that other mediating resources (people, ideas, prior experiences, information and stories in books, routines, carpentry tools, art materials, outdoor climbing equipment, for instance) must come in to play as well. Including family and community means that ICT will envelop the family and wider community as well as the children. Funds of knowledge from home will be integrated. Being empowering means that the learning of ICT will be about agency; it will include distributed expertise, and the curriculum will make it possible and probable that children will use ICT to take responsibility for their own learning and for the learning of others.

Ideas about identity

Identities as competent and confident learners

Researchers and teachers before this project have been involved in discussions and reflections about identity. There is a sense in which children are developing identities as learners in an early childhood setting. Te Whāriki makes reference to learning dispositions as key outcomes for children, and to the children's developing identities as learners. The curriculum is introduced with a quote from Margaret Donaldson and colleagues (1983 p.1)[6]: "By the time this [early childhood] period is over, children will

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[5] Ministry of Education (1996). *Te Whāriki: He Whāriki mātauranga mō ngā mokopuna o Aotearoa. Early childhood curriculum*. Wellington: Learning Media. Page 14.

[6] Donaldson, M., Grieve R., and Pratt, C. (1983). *Early childhood development and education: Readings in psychology*. Oxford: Blackwell.

have formed conceptions of themselves as social beings, as thinkers, and as language learners, and they will have reached certain important decisions about their own abilities and their own worth".

A pedagogical tool that uses ICT and links to identity as a competent and confident learner.

Our theoretical position began with the view that distributing the learning widely, across immediate family and extended family, strengthens learning dispositions. The data in this Report builds on this viewpoint. One of the key pedagogical tools for the Roskill South community is Learning Stories. Learning Stories were designed as a formative assessment tool that captured the distributed nature of learning, focused on learning dispositions and provided opportunities for children, teachers and families to revisit the learning (Carr, 2001)[7]. This form of documentation frequently uses ICT (and before they became a COI Roskill South was integrating ICT and Learning Stories), and the teachers at Roskill South have commented that Learning Stories were their entry into the use of ICT as a pedagogical tool. Caroline Gipps[8] (p.80) links identity to assessment methods:

> "The language of assessment and evaluation is one of the routes by which the identity of young persons is formed – for school purposes at least….If identity is conceived as concerned with persuading others and oneself about who one is, and what one is able to do, the judgement of others is crucial".

One of the authors (Margaret Carr)[9] has described Learning Stories as an 'identity-referenced' (as opposed to norm- or criterion-referenced) assessment tool.

The theoretical framework

Distributed learning, mediating tools, activity theory

The theoretical framework that this centre of Innovation project also builds on is a 'distributed' and 'situative' view of learning and teaching, also a theoretical assumption in Te Whariki, where a key principle is that 'Children learn through responsive and reciprocal relationships with people, places and things'[10]. In this view, learning is described as 'distributed' across, or stretched over, people places and things, and ICT provides some of those 'things'[11]. The common idea here is that learning is not just an individual matter: it depends on a number of supporting or mediating devices: artefacts,

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[7] Carr, M. (2001). *Assessment in early childhood settings: Learning stories.* London: Paul Chapman.

[8] Gipps, C. (2002). Sociocultural perspectives on assessment. In G. Wells & G. Claxton (eds), *Learning for life in the 21st century: Sociocultural perspectives on the future of education.* Oxford: Blackwells. Chapter 6 pp. 73-83.

[9] Carr, M. (in press). The leading edge of learning: Recognising children's self-making narratives. In *European early childhood educational research journal.*

[10] Ministry of Education (1996) *Te Whāriki: He Whāriki mātauranga mō ngā mokopuna o Aotearoa. Early childhood curriculum.* Wellington: Learning Media.

[11] ' "Cognition" observed in everyday practice is distributed – stretched over, not divided among – mind, body, activity and culturally organized settings (which include other actors).' Jean Lave (1988) p.1. Gavriel Salomon's 1993 edited book is useful on this idea: *Distributed Cognitions: psychological and educational considerations* (Cambridge University Press).

systems and structures – not just as scaffolding to get it started, but as part of a network that will keep it going.

> "Becoming knowledgeably skilful, from this perspective, is characterized by an individual's increasing potential to build and transform relations with the (material, psychological, and social) world".[12]

Activity theory[13] can provide a structured way of representing and analysing distributed learning. In some versions of activity theory a mediation triangle summarises this supportive network. We have used this device as well, labelling the mediating devices as the artefacts (which include, in this case, diverse ICT and assessment formats), rules & routines, the distribution of power, and community. The Activity Theory triangle we have used to describe the outcomes of the Roskill South Kindergarten is set out in Figure 1.
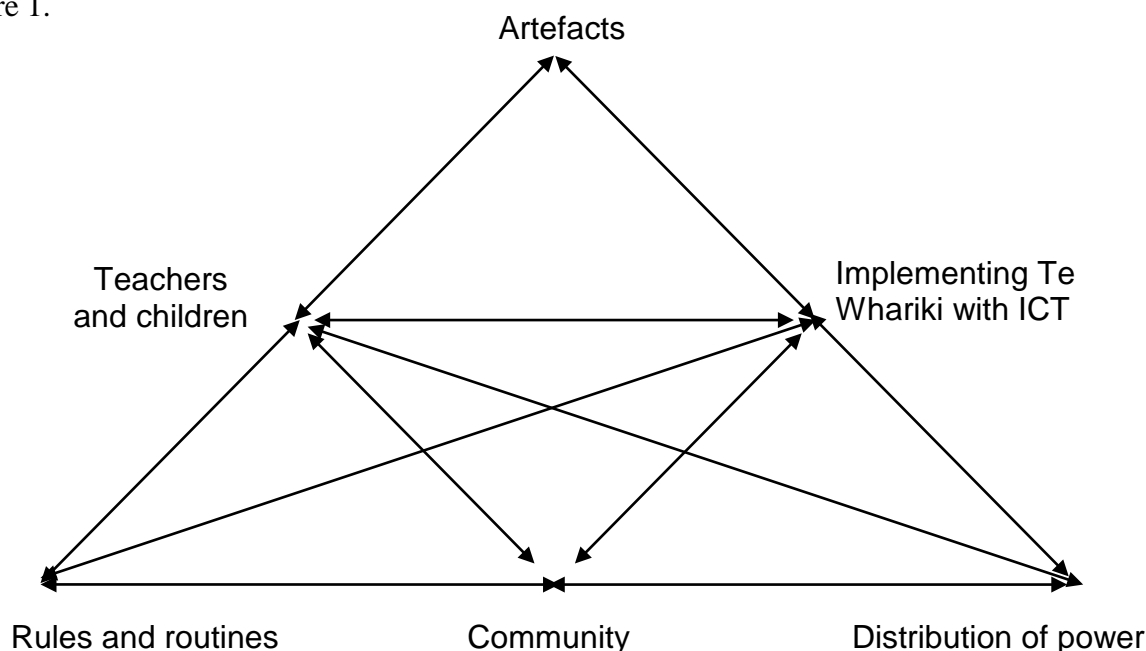
Artefacts

Teachers and children

Implementing Te Whariki with ICT

Rules and routines   Community   Distribution of power

Figure 1: Activity triangle for the Roskill South Centre of Innovation project

The central feature of this triangle (Figure 1) is the aim of the project: *teachers and children* developing ways to *implement Te Whāriki with ICT*. There are four mediating triangles around this central line: this aim is mediated (supported, enhanced, dependent

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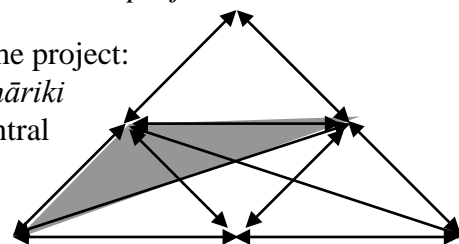
[12] Barab, S., Hay, K.E. & Yamagata-Lynch, L.C. (2001). Constructing networks of action-relevant episodes: an in situ research methodology. *The journal of the learning sciences* (1&2) pp.63-112. Quote p.66.

[13] Bonnie A. Nardi (1996). Studying context: a comparison of activity theory, situated action models, and distributed cognition. In Nardi, B. A. (ed) *Context and consciousness: activity theory and human-computer interaction*. Cambridge MA: The MIT Press. Chapter 4, pp. 69-102. Also, Kari Kuutti (1996) Activity theory as a potential framework for human-computer interaction research. Ibid pp.17-44. See also Engeström, Y., Engeström, R. & Suntio A. (2002). Can a school community learn to master its own future? An activity-theoretical study of expansive learning among middle school teachers. In G. Wells & G. Claxton (eds), *Learning for life in the 21st century: Sociocultural perspectives on the future of education*. Oxford: Blackwell. Chapter 6 pp. 211-224. Engeström, Y, Miettinem, R. & Punamaki, R-L (Eds) (1999). *Perspectives on activity theory*. Cambridge: Cambridge University Press.

on, as affordances and constraints) by the community (especially family and whānau), rules & routines, the distribution of power, and the artefacts.

Throughout this Report we refer back to this triangle as we report on the findings, highlighting particular mediating triangles within the larger system. For instance:

> Managing the innovative processes that used ICT involved developing *rules and routines* with the ICT that would 'afford' the learning the teachers, children, families, whānau and researchers were interested in. It also meant adding ICTs to on-going routines as well: powerpoints and slide shows at 'mat time' for instance.
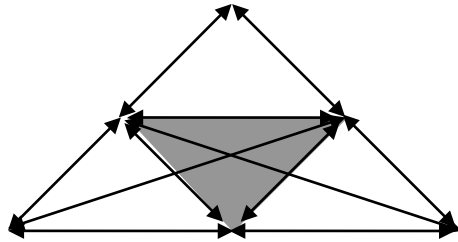
This story is also a story about reciprocal relationships with families and *community*.

It is also a story about activity theory's interest in changes in the *distribution of power*: the teachers sometimes 'letting go' and handing over some of the responsibility. In this project, ICT is a communication system that enabled the structuring of activity in order to gradually transfer the responsibility from an 'expert' to a 'novice' (a key aspect of learning highlighted by Uri Bronfenbrenner, and a component of the apprenticeship model of learning in Lave & Wenger (1991)[14].
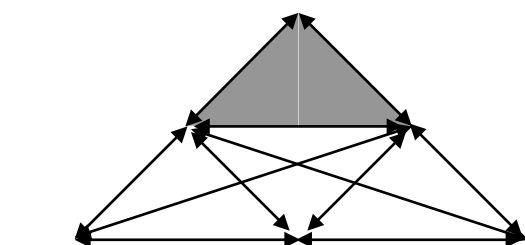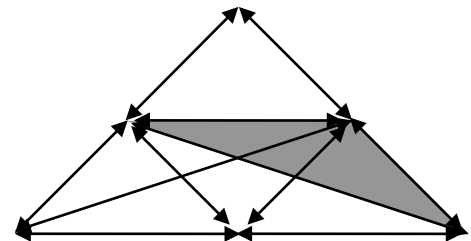
And, finally, this story is centrally about the artefacts: trying new ways to integrate different ICTs, adding ICTs to old artefacts (learning stories and learning books for instance), and adding new artefacts (welcome stories for instance).

Activity theory is interested in *change*, and in those aspects of the system that appear to enable or afford effective practice, practice that is designed to make a difference for the children's learning. One part of the triangle, or mediating device, may run counter to another. It reminds us that if an aim is empowerment, introducing a motivating *artefact* like a camera that affords children taking responsibility may conflict with the *distribution of power* if the teacher is always viewed as the expert.

So this is where we position ourselves theoretically, and these ideas are woven throughout the Report.

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[14] Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge Mass.: Harvard University Press. Lave J. & Etienne Wenger, E. (1991). *Situated learning: legitimate peripheral participation.* Cambridge: Cambridge University Press.

ROSKILL SOUTH KINDERGARTEN

Roskill South Kindergarten is rather uniquely positioned geographically and demographically. The story of the background characteristics at Roskill South has been told in three publications: an *Early childhood folio* article (Lee, Hatherly & Ramsey, 2002), a chapter in Joce Nuttall's *Weaving Te Whāriki* (Carr, Hatherly, Lee & Ramsey, 2003), and a chapter in *Catching the Waves* (Meade, 2004).

Two features are important to note. One of the characteristics of the families in this community is that at any one time there are about 17 different home languages. For many of the families, therefore, English is an additional language. Many have come to New Zealand for opportunities of good education for their children and they see the kindergarten as the children's first step in learning English. Furthermore, many families with English as an additional language keep close communication links with family outside New Zealand, keen to send news of their children's educational experiences back to family at home. A second characteristic of this community is that it is big. This is a kindergarten, with 45 children in a morning sessional programme, and 45 children in a three-afternoon sessional programme: up to 90 families in all. There are three teachers, all qualified early childhood teachers with a three-year qualification.

THE RESEARCH QUESTIONS AND THIS REPORT

This Report is structured around 'cycles' of data collection, perhaps better described as 'spirals', as they developed during the three year Centre of Innovation study. This was an action research project in which the research expertise was distributed across teachers and research associates. The teachers led the way, and the research associates joined them as part of a community of learners that included the children, the families, the wider families or whānau, the teachers and ancillary staff.

The Roskill South research questions were as follows:

> What ICT practices can be successfully integrated into everyday learning and teaching practice? (This centre already incorporates ICT – digital photographs, computer, digital video etc. – into their assessment practices). Integrating both laptop and desktop computers into everyday practice in an early childhood centre: is this a workable model for teachers?
> Does the increased use of ICT in everyday pedagogical practice encourage the children's sense of themselves as 'competent and confident learners' (Te Whāriki). A focus on:
> - Exploration and questioning
> - Communication and literacy
> - Collaborative dispositions and skills
> - Confidence, interest and involvement

The second of these sub-questions is the topic of four chapters in this Report: Chapter 3 (Becoming more confident and involved), Chapter 4 (Doing research and exploring), Chapter 5 (Extending communication competence) and Chapter 6 (Collaborative dispositions and children taking responsibility). We have moved the discussion of the second sub-question: *Integrating both laptop and desktop computers into everyday*

practice in an early childhood centre: is this a workable model for teachers? To Chapter 7 (Managing the system and reflecting on the learning).

> Does enhanced use of ICT in assessment increase the involvement of families in the children's learning and the centre's curriculum?
> - Increasing their contributions to the children's portfolios
> - Enriching their contributions
> - Widening the range of contributing families

This question is the topic of Chapter 2 (Making connections with the wider community)

> Does enhanced use of ICT in assessment assist the teachers, in collaboration with the children, to
> - Reflect back, discuss work over time
> - Suggest future steps
> - Document connections

This question is the topic of Chapter 7 (Managing the system and reflecting on the learning).

Chapter two
Making connections with the wider community

EARLY IN THE PROJECT

At the beginning of the project, teachers and researchers got together to discuss their starting points. The team's comments are in italics. We also considered the theoretical ideas that would be helpful in clarifying the project's aims.

Etienne Wenger[15] has suggested that one of the key aspects of identity development is what he calls 'reconciliation' between membership of different communities of practice. In this case it is a matter of making connections across communities, to make the learning context at kindergarten meaningful by 'reconciling' it with other spheres of children's lives. And vice versa, that other spheres of children's lives are enriched by connections to their kindergarten experience. Before the Centre of Innovation project, the teachers recognised that using the digital camera to insert photographs into the Learning Stories 'draws in' the families.

> *"It draws in a … whole range of our families; the pictorial nature of the documentation allows all families to be included."*

ICT that connects children with absent families and communities engages the imagination

It is certainly true that communicating with ICT engages the imagination: one has to imagine the recipient of the message. Early discussions focused on the use of the fax machine for this process. The fax, for instance, included absent families as participants, but they had also afforded communication links with other places before or after trips (the Museum, the Sky Tower) and other sources of information. Felix had been an example, before the project began.

> *Felix's mum phoned us to say he was sick and wouldn't be in that day, however Felix had really wanted to come in to kindergarten in person and tell us. We had been using the fax machine with the children at kindergarten recently and I suggested to Felix's mum that she could send us a fax from her work place to us and tell us in writing that Felix would not be in that day. I would show Felix the fax when he came back to kindergarten to let him know that yes we had indeed got the message. When Felix returned we talked about how his mum had sent us the message Sara (Felix's mum) then sent another fax to Felix and he was able to watch the message come out of the machine. Sara had drawn a picture of a heart on it for Felix. He was so excited when he saw the fax message and the heart that was drawn on it, and he jumped up and down saying "My heart…that's my heart…" Felix sent a return fax with a picture of insects: a strong interest on Felix's.*

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[15] Wenger, E. (1998). *Communities of practice: Learning, meaning & identity*. Cambridge: Cambridge University Press.

The teachers also wondered whether families might come and take photos of their children at kindergarten and e-mail the photos to families overseas.

> *"With the parents…. I was just sort of giving them some ideas about our vision of where this could go and got talking about the internet and how all families could come in and photograph their child and send it to family members overseas and we could email stories, their learning stories to their parents overseas."*

ICT assists with sharing funds of knowledge

At Roskill South, in addition to this, funds of knowledge from kindergarten were already being shared with the home through the children's portfolios, which were accessible to families, often read by families during session, and frequently taken home. This is a matter of mutual understanding and relationships, a feature of effective learning highlighted in Bishop et al. (2005)[16]. At the beginning of the project, the teachers were making videos of the children's learning, and families were borrowing them.

DURING THE THREE YEARS OF THE PROJECT

During the three years of the project, changes were made to respond to challenges that the teachers set themselves. These changes were distributed across routines and artefacts and the community in order to work more closely with families with Te Whāriki in mind. The teachers changed their routines to enhance discussion and reflection. They added to the ICT artefacts that were ready-to-hand. In their view, and the view of the researchers, the learning became more visible to families. The diagrams refer back to the theoretical framework used for the data from this project: the Activity triangle as set out in Figure 1 (Chapter one).

Routines
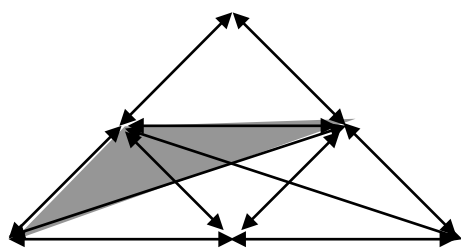
Working 'smarter': debriefings
Questions about equity were raised during the project. Karen Jane and Jacqui puzzled over ways to make sure that they wrote stories for each of the children. They began to work 'smarter', holding debriefing sessions at the end of each day when they discussed.

(a) stories they might write and (b) stories they had taken photos for that they planned to write. This meant that they enhanced their understanding of a wider range of children, supported each other as they developed children's growing interests and skills, and

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[16] Bishop, R., Berryman, M., Tiakiwai, S. & Richardson, C. (2005). *Te Kotahitanga: The experience of year 9 and 10 Maori students in mainstream classrooms.* Report to the Ministry of Education. Wellington: Ministry of Education.

avoided doubling up on the writing of stories. The consequence for the families was more stories, and more thoughtful stories.

Artefacts: cameras and laptops, the communicative power of photographs, Teachers' Stories, Welcome Stories

More cameras and laptops
There is no doubt that the teachers' decision to add to the number of digital cameras (one per staff member, and one for the children) and the laptops (one for each teacher) enhanced the quality and the quantity of the documentation for families. The additions made this possible, but not probable (the new equipment was necessary but not sufficient). What made them probable was the combination of changes in routines to enhance reflection, and newly invented formats/artefacts (the Teachers' Stories and the Welcome Stories). They felt that there was now an improvement in the presentation of portfolios.
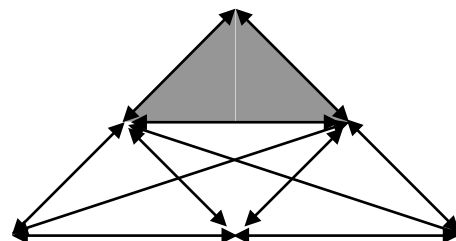
The communicative power of photographs.
> *Simran's mother brings in photos to share.* Simran's mother brought in photos from home. These photos generated much conversation and enabled us to deepen our relationship with not only Simran, but with her family too. Other families watched as we went through the photos and a few days later they too brought in their family pictures to share. This spirally effect enabled many of the families to share their home life with us, giving us an invaluable insight into their unique lives. The parents became the teachers.

Teachers' Stories
Teachers have asked themselves questions about how to make funds of knowledge reciprocal. It seemed to them that if we expect families to write about themselves and events from home for the children's portfolios, then it was appropriate for teachers to do the same. They initiated what they called 'Teachers' Stories', which were placed in the front of the children's portfolios. These Stories tell some detail of the teachers' lives, and include photographs.

> *Teachers' Stories.* These also included a story from Heather, the administrative assistant at the centre. All these Teachers' Stories were an A4 page of interesting information about the teachers and their autobiography, including 6-8 photos from the past. They are addressed to the children: e.g., "I really like pukekos (photo) and wolves (photo) and bending over backwards (photo of teacher as a child doing this). I wonder what you like to do?"

From the beginning these were of great interest to the children, who could 'read' the photos of the teachers. Chapter 5 notes that the photographs encouraged discussion by the children. Teachers' Stories meant that when the portfolios went home, the teachers 'went home' as well, and families got to know some background about the teachers. They often provided an entry point for conversation between caregivers and teachers. Luke's Mum and Dad story is an example of families' responses to these stories.

Luke's Mum and Dad Story. The mother of one of the children, Luke, responded to the Teachers' Stories by writing her own. Just as we had reflected on the fact that families didn't know that much about us, this opened up Danni's mind to the fact that even though we were teaching her third child, we didn't know that much about her. Danni initially bridged the gap by writing a story about Luke, she then took this a step further by writing a story about her and her families' life leading up to her becoming a part of our kindergarten community.

Welcome Stories

Although examples of Welcome Stories are in Chapter three, this was initiated so that writing Learning Stories was established as part of the culture of the place (using 'culture' to mean the norms or 'the way we do things here') on day one of a child's attendance. New parents began to respond by writing Parent/Whānau Voices early in the child's time at kindergarten.

Cade's fish story. We wrote a Welcome Story for Cade, and in the front of the file there is information about how learning will be documented here and there is a note that says 'We love to hear stories from home'. Cade's mother responded with a story about the family's trip to Katikati.

Cade then borrowed a fish jigsaw puzzle and his mother took photos for his portfolio of him at home with the fish puzzle and his fish lamp and his fish pillow. The teachers realised what a strong interest Cade had in fish and assisted him to develop this. [At a presentation in Wellington about the Centre of Innovation project, Karen shared this story. One of the participating workshop teachers came to the workshop next day with a sheet of fish stickers and a little card written to Cade, saying "I love fish too". Cade took them home and stuck them onto his fish lamp.]

Distribution of power

Loaning cameras out
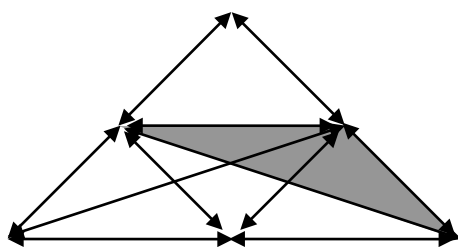
During the three years it became common practice for the teachers to loan cameras to the children and the families: disposable cameras, 35mm. cameras, and digital cameras. There are a number of examples of this. Some of these stories are in Chapter 3 (e.g. Sara takes a camera to Australia) because for some children this represented a 'watershed' in their engagement with the programme. Dylan took an underwater disposable camera to swimming lessons so he could be photographed swimming under water, and Daniel made a movie at his gymnastics class. One of the teachers assisted Dylan and other children to edit the video and add a commentary. It was shown at mat-time, and later Katelyn also took a videocamera to her gym class (see page 14). Mayur took a camera to India.

Mayur takes a camera to India. Mayur's Dad (Mitendra) had mentioned that they would be going on holiday to India to visit Mayur's family. I had noticed that, just like Mayur, his family had always displayed great interest in Mayur's learning at kindergarten and were always keen to see if there were any new stories in his file, so it was a lovely moment when Mitendra asked if he could take Mayur's Learning Story file with them to India. So off went Mayur and his family, their hands full with the portfolio, camera, video, parent/whānau voice (form) and Mayur's block person.

When Mayur and his family returned from holiday they had developed the photographs for us. We were able to now see another part of Mayur's life as Mayur and Mitendra explained who the people in the photographs were. Mayur's portfolio was returned and in it was a beautiful and heartfelt grandfather's voice, which I will never forget.

It has indeed been a pleasure to go through the contents of the individual file. It chronicles the growing years of Mayur and it will be a treasure to preserve for posterity. Mayur has a special interest in anything mechanical and in particular has special interest in automobiles…..

Thanks Again
Mayur's Grandad
Calcutta Sept 4 2004

[This story was told at one of the Centre of Innovation Visitor sessions, and a visitor from *MacGuide* – writing an article for the journal - sent a stack of car magazines for Mayur].

The community

Using ICT to document visits to the community
Before the project began, the teachers were documenting visits to places like museums and art galleries, and documenting these trips. Frequently they would ask children to comment on photographs for a book (see Weird and Wonderful, Book 1, *Kei Tua o te Pae*[17]). An extension of this was to fax or e-mail questions ahead of the trip.
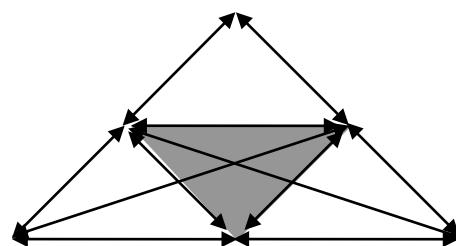
During the period of the project the kindergarten began to visit places of importance for the children. One of these stories is in Chapter 3 (e.g. Melwyn's home visit) because these stories are about community *and* the wellbeing of the child (of course, positive relationships with families are always about the wellbeing of the child as well).

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[17] Ministry of Education (2005). *Kei tua o te pae: Assessment for learning. Early childhood exemplars.* Wellington: Learning Media.

The Visit to Katelyn's gym. This followed on from Katelyn and her mother making a video of Katelyn at her gym class. They showed the video at the kindergarten and the children had been practising their moves. They practised rolling, jumping, crawling and balancing. The kindergarten then arranged a trip for the children to her gymnasium. The Learning Story of this trip concluded with the words:

> "Well, our visit to the gym was over and we thanked Jenny [the instructor] (and her team and got back on our bus. When we arrived back at kindergarten Jane set up a slide show and we were able to watch our photos and then the video of our very special morning."

SUMMARY OF THE CENTRE OF INNOVATION PROJECT INTEGRATING ICT FOR THE FOLLOWING GOAL: MAKING CONNECTIONS WITH THE WIDER COMMUNITY

Making connections with families and community beyond the centre is an aspect of the curriculum strand *Belonging*, and a principle, in Te Whāriki. It is of special importance in an early childhood centre where at any one time families represent about 17 home languages. Children have strong family links, and past lives, beyond New Zealand.

- Teachers were feeding back more information to families about children's learning because they had made set times to reflect on the writing of Learning Stories.
- An improvement in the presentation of Learning Stories encouraged families to share their own photos, adding to reciprocal relationships.
- More entry points for conversations with families were created by the Teachers Stories.
- Parents recognised the reciprocity in Teachers Stories, and shared episodes from their own lives.
- Welcome Stories highlighted the significance of the children's portfolios for the programme, and invited families to contribute.
- Children and families frequently borrow the cameras, adding to teachers' understandings of the children, to the relationship with families, and to opportunities for revisiting and learning.
- Photos taken by children and families outside the kindergarten, shared with children during the programme, provided possible pathways and new interests for all the children.

Chapter three
Becoming more confident and involved

BACKGROUND

Distributed cognition and activity theory, introduced in Chapter one, are aspects of a 'situative' approach to learning. 'Situative' theory or situated cognition emphasises the role of the learner participating in a community of learners, and learning from the 'culture' of a classroom or an early childhood centre. The communication technology is central to this culture. James Greeno, Allan Collins and Lauren Resnick (1996), Anna Sfard (1999) and Barbara Rogoff (1990, 1993) are useful on this approach. A key point made by Greeno and colleagues is that the situative view must now be included in any view of knowing and learning[18]. In this view, learners become more adept at participating in distributed cognitive systems. It focuses on

> "engagement that maintains the person's interpersonal relations and identity in communities in which the individual has a significant personal investment. This view emphasises how people's very identities derive from their participatory relationships in communities. According to this view students can become engaged in learning by participating in communities where learning is valued." (Greeno et al., 1996, p.26)

They cite research on the influence of participation in valued communities on secondary school students' engagement in academic pursuits.

In early childhood literature, Ferre Laevers has emphasised intellectual involvement and emotional engagement as crucial conditions for learning[19]. This chapter is about the role of ICT in assisting with these processes. They come together in the ways that ICT can contribute to children's developing identities as competent and confident learners.

EARLY IN THE PROJECT

Identities as competent and confident learners

Early in the project the teachers were interested in how ICT could contribute to children's identities as competent and confident learners. They comment on the use of

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[18] Barbara Rogoff defines learning as transformation of participation, see Rogoff, B. (1990). *Apprenticeship in thinking.* Oxford and New York: Oxford University Press.
Rogoff, B. (2003). *The cultural nature of human development.* Oxford and New York: Oxford University Press.
Greeno, J.G., Collins, A.M. and Resnick, L.B. (1996). Cognition and learning. In D.C. Berliner and R.C. Calfee (eds) *Handbook of educational psychology.* New York: Simon & Schuster Macmillan and London: Prentice Hall pp.15-46.
Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational researcher 27*, 2 pp.4-13.

[19] Laevers, F., Vandenbussche, E., Kog, M., & Depondt, L. (n.d.). A process-oriented child monitoring system for young children, *Experiential education series. No.2.* Leuven Belgium: Centre for Experiential Education.

the ICT-generated portfolios (an early example of Suelisa, before the project began, who carried her file around with her everywhere until she didn't need to any more, was cited):

> *It [the portfolio] values what they have brought to the centre or their theories and ideas about things. We're able to go back and show them that yes we have listened to you and taken your ideas on board and here is what we've done together. We can now go back and look at it.*

> *I think it reaffirms them in their learning and makes them want to learn more. And it's nice just to go back and notice new things, or show somebody else, this is what I did. You can do it too, or let's do something different.*

> *Today a child was upset and there was just a little story in the front of her file about a friend that she likes playing with, and so just being able to go back and get that out and … use her folder as a tool to help her settle, to start the session, … it instantly reminds them of the good things … and what they have done.*

> *You notice if they are upset or somebody else is, they'll go and get it (their portfolio). So they realise it's a comfort and it makes people feel … I am special, I am important here because here's my stuff and you're going through it with me or I'll go and get it to cheer myself up, to reminisce about the good times.*

Mutual respect and trust

Early in the project, the teachers also commented on the importance of mutual respect and trust, on relationships, as a basis for the ICT. They saw transparency and accessibility of the ICT as being an important corollary of this: "It's not sort of rushed off and done in secrecy and then de-da, it appears the next day. The children are seeing how the computers are used …" They also commented on the children seeing themselves as having an important role in this community of learners: 'Jordan said the other day "Yes Karen. That is a very good idea". "Oh thanks, Jordan", I said'. One of the teachers commented then:

> *I notice that there's a huge wealth of trust between the teachers and the children, and the children and the teachers, and the children care for the equipment as if it is theirs.… It's like everyone's learning together and this stuff is ours and we will care for it. And you hear that in the way that the teachers speak to the children and the children speak to the teachers and the children speak to each other.… It's not the teacher that has to instigate or initiate and you sit and watch. We'll do it together. .… It's like we're all investigators, and I really notice that with the children. They are confident learners. It's not like they have to wait for the teacher's say-so…They'll come up and say what do you think about … or they'll say "That's a great idea. Do you like that?"*

ICT is useful, for a meaningful purpose

Jean Lave & Etienne Wenger and other writers have made a number of observations about the 'inauthenticity' of classroom practice (it doesn't connect to the wider community, and students can't make connections with prior experience in meaningful ways). Early in the project the teachers were interested in ways in which ICT would enable authentic practice. Chapter 2 covers some of this as well. The aim for the project was to develop ICT as a pedagogical tool, integrated to the wider purposes of education. The teachers commented on some of the affordances of the photocopier to assist with the children's everyday purposes: the technology is accessible, it is useful for the task at hand, and it provides immediate results.

The technology is accessible

Last week ... I was discussing with a couple of the children about our visit to the Sky Tower where we were going, and we found a (picture of the) Sky Tower, so we cut that out and we laminated it, because we thought oh it would be good to keep it and then I thought ... it would be quite good to make a height chart, we could measure ourselves up against the Sky Tower. This one boy in particular was keen. So we had a chat about ... how do you think we could make this Sky Tower much bigger? What could we use to copy it? So he said we'll just photocopy it. And I said okay, but how is that going to make it big and he said we'll just photocopy lots and lots and lots. So we photocopied lots and lots and then we cut them out and ... his mum arrived and so she came and said oh can I help too. So the three of us sat down and ... some other children came over and wanted to help but there wasn't enough so Sam said well we'll just copy some more. ... So he went and got his chair up by the photocopier and knew where to put it and which button to push.

So we just cut the top and the bottom off and kept the middle, and made the middle really (high) and then stuck the bottom and the top on.

The technology is useful for the task at hand.

So if they've done a picture and they want to put it in their file but they want to take it home, they know that you can copy it and they do that independently or they (may) need someone to help them.

But Emily the other day, she had that painting and ... (I said) I'll take it home to remember her by, when she went to school…… And then she said oh no, we could copy it and we can have one each to take home. And so I copied her painting. We did it together and then she asked for the paint that was the same as the original and she painted it and decorated it. So we could make two she said, so she could have one to take home and I could have one.

The technology provides immediate results

We used it today. We're going to the Sky Tower on Friday and so in small groups today we walked down the path until we could see the sky tower and we were sketch drawing it and so when we got back we copied them so that they can have a copy for their files to take home and one for the wall.

And it's nice having that instant access when there's an idea or a theory that they want to try out.

DURING THE THREE YEARS OF THE PROJECT

During the three years of the project, there were significant developments in terms of the use of ICT to enhance the children's participation, their identities as competent and confident learners, mutual respect and trust, and ICT for meaningful purposes.

### Artefacts: books, Welcome Stories

Books
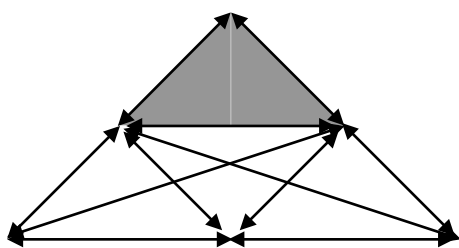
Although making books had been a feature of the programme before the project began, the teachers began more often to utilise the power of the children preparing *books* on topics that interested them, and of occasionally turning their learning stories into books. As in the examples in Chapter 2, the teachers are also loaning cameras to the children, to encourage the programme to reach out to the rest of their lives and therefore to enhance its meaning.

Sara takes a camera to Perth. Sara, for instance is loaned a camera to take to Perth when her family go on a visit. The teachers commented that before the trip "Sara didn't seem to have her own voice". When she returned, the teachers collaborated with her to turn the pictures into a book and a slide show.

On Sara's return we took the camera to our local pharmacy to develop the film (just like in the olden days) and asked them to put the photographs onto a disk. When the photographs were ready Sara and I sat down with the lap top and we put the disk in. We then began to make a book (a copy for Sara and a copy to keep at the kindergarten) with me formatting the page and Sara dictating to me the story of her holiday.

Later on at mat time we watched a slide show of Sara's holiday….I could see that Sara took great pride in telling her friends all about her adventures. Explaining what was happening in each picture as it appeared on the screen. I hadn't recalled Sara talking to her friends in a 'mat time'

situation before and Sara's confidence in her own abilities seemed to have really blossomed and I wondered if giving Sara the camera had played a role in empowering her and given her the means to have her voice heard in a way that was meaningful and appropriate for her?
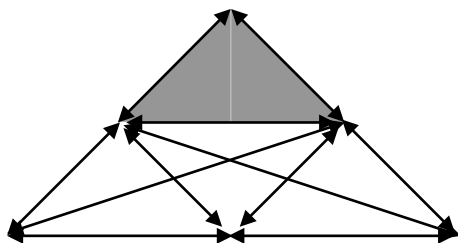
Books
It became more common for books to be made as 'literacy artefacts', for the children to revisit, 'read' and reflect on their learning. Children became adept at using the laminator and the book binder to help with this task.

Alex's books. Alex began kindergarten in March 2003. I remember back to when I had written Alex's first learning story. I approached Michelle (Alex's mother) to share Alex's first story with her, I was rather excited to be sharing Alex's first story, Alex's older sister Jordan had been at our centre, and now Alex had her first story!

When Michelle saw the story in Alex's portfolio she said "That's great but Alex will have trouble seeing the pictures and turning the pages" Michelle explained, this is because there were lots of pictures on the page; I have used lots of pictures thinking it would help Alex to revisit her learning, but too many pictures on the page made it 'too busy'. Alex would also have trouble turning the clear leaf pages. This got me thinking!

….We use the children's portfolio as a tool, a tool to revisit and celebrate learning.
How was Alex going to revisit her learning and share and celebrate her learning with her friends and family?
We began to make Alex's Learning Stories into books, one big picture on each page.

Welcome Stories

A second artefact, introduced during the three years of the project, and noted in Chapter 2, was the children's Welcome Stories (see also Chapter 2). Learning Stories have always been a key pedagogical tool here, and the teachers began to write a story for each child on their first day. Che is an example of the consequences of this.

Che starts kindergarten. After he had been introduced to his file and the first-day (Welcome) story in it, on the second day he asked to borrow a camera; a teacher taught him how to use it, and he photographed his file on the shelf, the first page of the file, and his Welcome Story. A second Story was written, with his photos included, as well as photographs of Che taking photographs and sharing them with another child, Robyn. Here is the text:

Che documents. When Che and his mum came to kindergarten today Che's mum said that she was going home today. Before she went home they read his first story in his portfolio. Che asked to borrow a camera and….brought the camera back to show me the pictures he had taken. We downloaded the photos into the computer and watched them on a slide show. Robyn joined Che at the computer and the two friends enjoyed looking at the photos together.

WHAT LEARNING IS HAPPENING FOR CHE?
Che has only been at Roskill South for a few days and he already has an understanding of the value we have for children's documentation.

We often use the digital camera during session and Che has noticed the children and teachers using this technology and knew he could use the camera too. Che is showing an interest in photographing and documenting. Through using the camera Che has developed relationships with friends and teachers at kindergarten; there was lots of chatter and excitement as Che and his friends watched his photos on the screen.

FUTURE POSSIBILITIES
Maybe Che would like to borrow a camera and take some photos of his friends and family at home.

Che did borrow the camera, and he dictated the next story to accompany his and his mother's photographs: the view from the car, the dentist's waiting room, Che in the dentist chair, and his family.

Routines

One of the routines of many early childhood centres is to go on trips, usually to places of historical or cultural interest, often museums, art galleries etc. Roskill South is no different. They have also taken trips of particular interest to one or more of the children: the trip to Katelyn's gymnasium is described in Chapter 2. Photographs and/or video tapes enable these experiences to be revisited by the children.
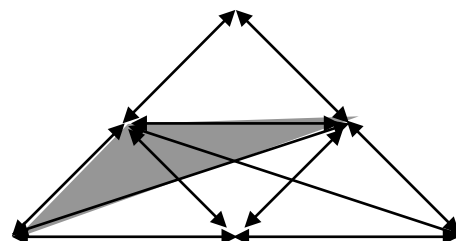
Morning tea at Melwyn's. On one occasion during the project they took all the kindergarten children down the road to Melwyn's house for a visit. Melwyn had seemed disconnected from the kindergarten programme. He used to frequently ask the other children if they would come and play at his house; they didn't know him well so most of them said "No". The teachers decided, after discussion with the family, to take the entire kindergarten group (forty-five children, and some extra accompanying adults) on a trip down the road to Melwyn's house. The trip was a great success. Following on from this Melwyn began to participate in the kindergarten programme with enthusiasm; in particular he began to draw, and to make his own books.

A video of the visit to his house was available at the kindergarten (and at home, of course) for Melwyn to revisit with his peers. For Melwyn, it appeared that this event, and the opportunity to re-visit it, established a sense of belonging and connection that accompanied a disposition to explore his talent for drawing.

Distributing the power
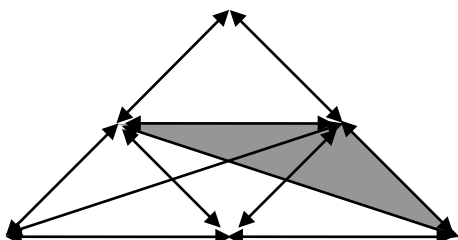
During the project it seemed to the researchers that the teachers were legitimately handing responsibility over to the children more and more. There are a number of examples of this, in particular giving them cameras to use during the session, and loaning cameras to take home.

Turtle safe: Jordan teaches the children. Another example stands out: when Jordan took on the teaching of 'Turtle Safety' (earthquake safety) to the other children. Jordan is anxious about earthquakes and therefore earthquake drill (she was very interested in dinosaurs, and held a working theory that linked dinosaurs becoming extinct with natural catastrophes and earthquakes). The event began with a commercial video on 'Turtle Safety' (which included a helpful cat and a warning horn), shown to the morning session children at the kindergarten.

Jordan borrowed the Turtle Safe video, and watched it at home. She made an earthquake safety poster. One of the teacher said she needed to teach the afternoon children about earthquakes and as she was an expert about earthquake safety would she come to an afternoon session and help me. "Yes Karen that is a very good idea" Jordan replied.

Jordan did come and take the afternoon mat time session about earthquake safety, and the teachers made a video of her teaching. They wrote this up as a Learning Story, with photographs attached.

SUMMARY OF THE CENTRE OF INNOVATION PROJECT INTEGRATING ICT FOR THE FOLLOWING GOAL: CHILDREN BECOMING MORE CONFIDENT AND INVOLVED

- Sharing photographs by or of the children as slide shows in groups: children recognised their stories were valued, explained the photographs to others, contributed their own voices and skills, and participated with more confidence.
- Books prepared for and by the children on topics of interest to them enhanced the meaningfulness of the early childhood programme, made revisiting more likely, and therefore deepened the learning.

- Children are included in learning (and revisiting) experiences by innovative uses of ICT, for instance to make books about their participation with large pictures.
- Photographs plus the routine of writing Learning Stories is increasingly characterised by children dictating their own stories: this enhances participation in story-telling, thinking about the past, re-interpreting photographs, and communicating with others to explain events.
- Welcome Stories appear to 'speed up' children's participation: children are enabled to use the camera to tell their own stories, very early after starting.
- Documenting trips of special interest to the children, often with a particular child as a focus, has contributed to children revealing and developing interests like drawing.
- Inviting children to take responsibility has led to children overcoming fears and increasing their confident participation.

Chapter four
Doing research and exploring

BACKGROUND

Asking questions, being curious, and exploring, are significant aims for education. These strategies begin in early childhood, especially in an environment that affords such exploration: takes children's questions seriously, encourages enquiry, and respects the knowledge and interests that children bring with them. There is no doubt that ICT can be especially used as an artefact for exploring children's questions, and for persevering when the search is unsuccessful.

There are a number of ways in which children and teachers use ICT as a *research* tool: to follow their interests, to capture images and events and revisit them, to enable a range of viewpoints on the one event, and to record learning for families teachers and children to revisit and plan ahead. Photographs provide the opportunity for teachers and children to raise questions and for a number of participants to present an alternative viewpoint. A vivid example before the project was published in *Kei tua o te pae*, where after a trip to a 'Weird and Wonderful' exhibition at the museum, children were shown the photographs and commented on their particular interest: each child remembered something very different from the 'same' experience. Persevering when things go wrong is usually (but not always) an aspect of effective exploration. Chapter two explored the capacity of ICTs to tap into the funds of knowledge that students bring to the kindergarten from their diverse backgrounds. This is a rich stating point for a spirit of inquiry.

Early discussions focused on the capacity of the programme to encourage dispositions of inquiry. The teachers commented on the possibilities provided by the speaker phone and the fax.

> *(We) did actually fax, write down all the children's questions (about a trip) and we faxed that at the start, and they very kindly faxed back and tried to answer all the questions that we'd asked.*
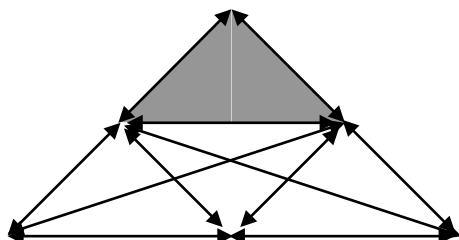>
> *So we went on the trip itself and we recorded (further questions) and …we sent those off.*
>
> *And they responded*
>
> *Yes, they did.*

DURING THE THREE YEARS OF THE PROJECT

Artefacts

Web sites
The teachers continued to use websites to assist children to find information. By now, the computers

were on the floor of the kindergarten, and there was ready access to the printer. It had become important to restrict the number of pictures printed off, so children had to make a number of evaluative decisions along the way. The teachers commented that the teachers have accessed the internet for pictures for a number of purposes: provocations, celebrating interest, adding to a child's story (e.g. two pictures of 'angler fish' for a story by Sione), and to encourage children to practise their English language skills (a picture of a Great White Shark for Habib).

The children, with the assistance of teachers, accessed websites for information as well. Dylan and Daniel used websites sites to find pictures of trains to assist with their play.

> *Finding Diana.* Daniel was painting (a train), talking about 'Diana', which Jane assumed was from Thomas the Tank Engine. Dylan had requested the glue gun because he wanted to make an engine like Diana. Jane brought over the laptop and looked at the Thomas the tank Engine site, but couldn't find Diana. Then she looked at the NZ site which included Glenbrook: up came 'Diana' and Dylan recognised it by the number (his mother later explained that he had a calendar on the wall with all the engines from Glenbrook and their numbers).
>
> The children worked together to scroll around the Glenbrook site: one of them securing the cursor and the other moving it. They printed the photographs that interested them and some of these were put on the wall. Dylan referred to them as he built his construction ("Hang on, it's not the same").

The teachers and the children also searched the internet for pictures of superheroes, after Hamid introduced the Spiderman Planning Story during the second year of the project.

DVDs
A commercial DVD of fish was useful for Richard to choose a fish to construct. The DVD turned out to be a motivating tool as much as an information source.

Learning Stories
Throughout the three years, the teachers continued to write Learning Stories. They developed routines to enable these stories to be more thoughtful, see Chapter 7 (Managing the system and reflecting on the learning), and the children began to take more responsibility for the documentation and the stories themselves, see Chapter 6 (Collaborative dispositions and children taking responsibility). These Learning Stories always included a review of the learning and frequently a section on possible planning pathways. The following is a review of the learning in a Learning Story about Amelia persisting with difficulty and practising. Children often talked about practising as a strategy for achieving a goal.

> *What learning is happening here for Amelia?* The disposition of 'persisting with difficulty' was clearly evident today as Amelia practised and practised and kept trying until she had achieved the goals she had set herself. It was great to see Amelia's quiet determination and perseverance, and faith in her abilities was rewarded when she walked across the beam. Amelia's enthusiasm and delight in her achievement was lovely to see as well as very infectious. I was glad to have the

camera on hand to capture all Amelia's hard work as well as the
"Hoorah!' jumping. Great work Amelia.

Cameras

Cameras - disposable, 35mm, and digital – had become everyday tools for learning.
They feature in every chapter of this Report. Maddys' exploration with a camera was
documented: her first photo was of a toy bear and a pushchair ("for my Mum"), then she
took a photograph of a floor puzzle of a train that she and other children had completed,
with some difficulty. She then took the puzzle home, and the teacher e-mailed the
photograph of the completed puzzle (in sections) that she had taken so that she could
use it as a guide at home.

On another occasion Maddy used a number of communication and representation modes
to explore an interest in the Sky Tower. She created a Sky Tower out of clay, took a
photo of it, and explained to the teacher that she had just recently seen the Sky Tower,
saw bungy jumping, and went up in a lift. She and the teacher explored a website
together about the Sky Tower, and printed a picture of it.

Distributing the power

Children were collecting their own data (e.g. the
slide show of plants in the kindergarten) for
exploration.

*Mehul the journalist, collecting data on
learning and, later, cars.* Mehul began
kindergarten in the afternoon session and had not had many experiences away
from his Mum. Mehul's Mum explained that he had older sisters and enjoyed
doing 'jobs' around the house, so, I wondered if a way to form a relationship
with Mehul would be to get him to work alongside me…...
Mehul stayed alongside the teacher for some time, assisted her to laminate some
photos, and then one day he asked to use the camera. He began to document
other children's work, as he had seen the teacher do.

"This became what Mehul and I did, almost like journalists, working as a team.
Mehul then began to take more of an interest in the activities that were available,
I think because he had been able to watch and learn about these areas as he
documented others. Mehul was now able not only to document his friends'
achievements, he was also beginning to document (and recognise) his own….. "
Mehul's (use of English) developed and you can see in his car story that he was
now using full sentences, going from whispering "*camera*?" to asking "*Where is
the camera, I want to take some pictures.*"….

The camera gave Mehul a voice….

That was in June 2004. By mid 2005 he is saying: "This is my car. This is the
tyre it has four one two three four. The windows were broken in the shop. I
wanted to bring it because I liked to bring and I want to take photos and make a
book". By week 6, term 3 2005 he dictates a story to go with a car construction:
"I put here, a sticker, it is the number plate. This is where the driver sits, beside
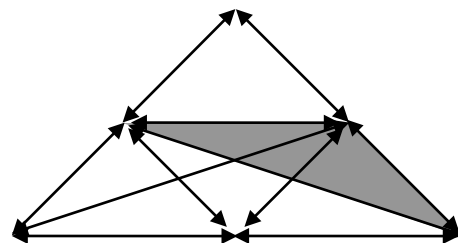
the big part. The nail is the aerial for the radio. The other nail is the seat part for the driver".

Routines

Mat times

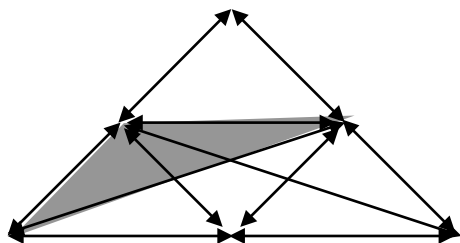The children developed an I-photo slide show from their photographs of plants around the kindergarten. Teachers also developed slide shows of children's work for the children to revisit, see Chapter six. These slide shows were revisited at mat times (and other times if the children decided they wanted to see them.

Revisiting portfolios

One of the routines at the centre was the revisiting of portfolios. Children 'relived' episodes of learning and discussed and described events from the past.

> *Our very busy day Alisha shares her file with Kaveshey and Amritpal, and they share theirs with her.* Kaveshey sat next to Alisha and opened his file. He stopped when he found his story about the zoom slide. Alisha and Amritpal listened and added their memories about our summer time fun. Then Amritpal showed his file and explained that he has two files, one from Roskill South and one from his old kindergarten. Alisha then suggested that they take some photos. The team leap to their feet again and ran inside. When they returned they had a camera in hand and were ready for action. They took photographs of each other. The teacher incorporated these photographs into a Learning Story about the three of them interacting with each other.

Community

Trips out into the community were carefully documented, before and during the visit in order to support the children's interest. For instance, a trip to the Art gallery was planned because the children were developing a strong interest in art and the teachers wanted to foster and extend this.
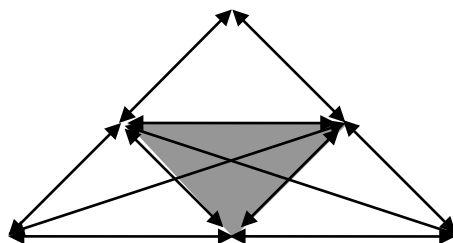
> The decision to visit the Matoa gallery was made because the current exhibition, the work of a Samoan artist, was described as colourful, vivid and large. A teacher took photographs before the visit so the children would be familiar with the works and the layout of the gallery. We called a 'meeting' and showed a slide show of the photographs, encouraging children to discuss the types of things they might see and do. These ideas were recorded and displayed, as the children dictated a list of things that they felt were going to be useful to use at the gallery. This included pens, paints, paper, and, of course, cameras. We suggested that we take a cell phone so we could call the children and teachers back at the kindergarten

to check in and explain the things we were doing and seeing while we were at the gallery.

Piwai suggested that the children needed to be able to take their own photos, and wanted to set up a gallery.

Children took photographs of their favourite pictures and the parts they liked best. These became a further slide show for the children to revisit on their return.

SUMMARY OF THE CENTRE OF INNOVATION PROJECT INTEGRATING ICT FOR THE FOLLOWING GOAL: CHILDREN DOING RESEARCH AND EXPLORING

- Children accessed pictures from websites (with the assistance of teachers) to: add to their knowledge about topics of interest, to illustrate their stories and to practise their English language skills.
- Teachers used websites and commercial DVDs to provide provocations (surprises) and to add to the knowledge about topics of interest to the children, and to introduce new interests.
- Discussions about superheroes were on-going, enlivened by pictures on the wall from websites, as well as drawings and photographs of the children's work.
- Persisting, practising, and setting goals for themselves were aspects of valued learning that were documented in photographs and Learning Stories. 'Practising' became something that was routine here.
- Collecting their own data to enhance their play, to tell a story, to document other children's learning had become a common feature of the children's work.
- If collecting data for formative assessment is action research, then children like Mehul were daily involved in doing research.
- The camera gave children with little English a voice; this voice encouraged them to persevere with communicating in English.
- Revisiting documentation included imagining and reconstructing past episodes as well as 'reading' pictures, and sometimes explaining events to others.
- Children were becoming 'multimodal', as they were becoming familiar with a range of modes for communicating representing and exploring topics of interest: clay, paint, drawing, printed pictures from the internet, and photographs of their work.

Chapter five
Extending communication competence

BACKGROUND

ICT is an additional mode of communicating and representing information. It can communicate information visually in a range of ways, and this means that the information can be 'read' by children. Furthermore, it forms a bridge between children (and families) and teachers in two ways: photographs are interesting, and if you are developing English as an additional language the photographs are 'ready-to-hand'. Barbara Rogoff writes about communication or guided participation between adults and children as being about bridging and structuring. This is true of children with children, and adults with adults. *Bridging* is about sharing understanding of the task or topic at hand. *Structuring* is about directing or negotiating another's participation: keeping the conversation or negotiation going.

> "Communication and coordination during participation in shared endeavours are key aspects of how people develop. Participants adjust among themselves (with varying, complementary, or even conflicting roles) to stretch their common understanding to fit new perspectives…. I discuss two basic processes of guided participation that appear to be common worldwide. The first involves children and their companions supporting their shared endeavours by attempting to bridge their different perspectives using culturally available tools such as words and gestures and referencing each other's actions and reactions. The second is their structuring of each others' involvement to facilitate engagement in share endeavours." [20]

ICTs can *bridge* gaps in understanding by adding another, accessible, mode to communication, beyond words and gestures. They can also *structure* participation by adding action to the talk (children taking photographs, fetching their files for re-visiting) and providing a common artefact that is inviting and interesting (in slide shows, powerpoints, websites, Learning Stories and wall displays). This chapter provides some examples from the project, and the following chapter on collaboration and taking responsibility adds to this picture of communication and participation.

Communication in different modes
The team have commented on the multimodal capacities of ICT. The ICT incorporates picture and sound, and sometimes dictated or spoken text. It also adds more bridging and structuring features to a pedagogical tool – Learning Stories – that encourages language (dictating around a photograph, for instance, and revisiting). There is a considerable body of research on the value for development of revisiting events, a research project that has been spear-headed by Katherine Nelson's work.

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[20] Rogoff, B. (2003). *The cultural nature of human development.* Oxford & New York: Oxford University Press. Quote on p.285. Examples of children bridging and structuring are in Carr, M. (2001). *Assessment in early childhood settings: Learning stories.* London: Paul Chapman. Especially pp.83-85.

"Children have individual episodic memories from infancy, but it is only in the light of *social sharing* that both the enduring form of narrative organization, and the perceived value to self and others become apparent".[21]

The attraction of the electronic medium (cameras and computers) for children encourages the disposition (and therefore the ability) to 'get one's message across' in a number of different ways, even when you can't read or write the printed word. This is also relevant if you speak little English and the predominant language at the centre is English.

Early in the project the team commented on the use of the fax machine for communication in different modes:

I think it's a way that they can communicate because they can communicate by…. drawing their picture, (they can) communicate in picture form. They don't have to be able to write, and then by going through the fax it comes out the other end, this picture that they did.
A lot of it is about the fact that they can't read, but they've got a lot of the communication modes and what you're trying to do is to tap into some of those, aren't you.

Revisiting, making sense of an experience
The Learning Story format for assessment enables revisiting events of learning and remembering events generally. Work by Nelson emphasised the contribution to language development of revisiting events. Nelson has commented that event knowledge launches children into the verbal world, "where knowledge can be exchanged with others and variations in experience can enrich the child's understanding". In the same volume, Fivush and Haden (1997 p.195)[22] conclude:

During the preschool years, as children are learning to recount more coherent and more cohesive narratives about their past experiences, we believe they are simultaneously learning to understand their life

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[21] Nelson, K. (1997a). Cognitive change as collaborative construction. In E. Amsel & K. A .Renninger (eds) *Change and development: Issues of theory, method and application.* Mahwah NJ & London: Erlbaum. Quote on p.111 (Nelson's emphasis).

[22] Nelson, Katherine (1997b). Event representation then, now, and next. In Van den Broek, Paul W., Bauer, Patricia J., and Bourg, Tammy (Eds). *Developmental spans in event comprehension and representation: Bridging fictional and actual events.* Mahwah NJ: Erlbaum. Chapter 1 pp.1-26. Quote on p.8.
Fivush, Robyn and Haden, Catherine A. (1997). Narrating and representing experience: preschoolers' developing autobiographical accounts. In Van den Broek, Paul W., Bauer, Patricia J., and Bourg, Tammy (Eds) *Developmental spans in event comprehension and representation: Bridging fictional and actual events.* Mahwah NJ: Erlbaum. Chapter 8 pp.199-236.

experience in more coherent and more personally meaningful ways. As narrative skills develop, so do skills for representing events in more elaborate coherent and evaluative forms. Narrating the past is a critical part of representing the past. It is through narrating the personal past that we come to understand and represent the events of our lives in ever more meaningful ways.

Nelson (p.9) refers to the work of Tomasello, who "has constructed a powerful theory of early verbal learning based on event schemas". This supports the value of narrative forms of documentation that can be revisited.

The team have commented on the value of ICT for enabling revisiting, a long tradition at Roskill South.

So it's sort of instant … while they're there with you.

There's the revisiting and then there's the capacity for helping them to predict too.

When we go on a trip with the video camera we then get the video downloaded into the computer and then … form that into a movie. Then the children choose clips from a particular movie to have for their story, so they actually sit down and write the story with us and then that goes into the files with the child's voice and it also goes into making a book.

To be able to revisit and to see documentation of their previous learning … it sparks further learning.

I think that's still from when we first started using learning stories and just listening to children. You know we will listen to what they have to say about what they've done and so they know that when we listen we write it down, so they know now that their stories can be recorded.

OVER THE THREE YEARS OF THE PROJECT

Over the three years of the project the 'camera has become a voice', as the example of Mehul in Chapter 4 illustrated. Other developments are: toy characters (large soft toys or blown-up figures e.g. Lion and Superman) have gone home with a camera, to enable story-telling; the ICT and routines associated with adding reflection to the process of writing them have made it possible to write more and better learning stories for revisiting and encouraging language; Teacher Voices have provided another forum for reciprocal talk; revisiting learning via slide shows and video clips has become routine at mat time, adding reflection and discussion; the teachers have continued to move some of the responsibility for the learning to the children, and the artefacts (books for instance, where children can 'read' to each other – and teach each other) have assisted with this.

Artefacts

Telephones
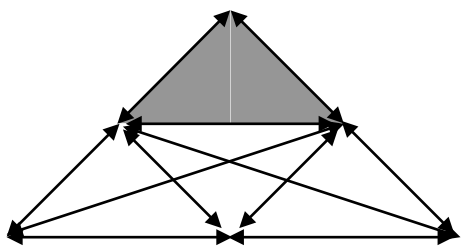
The Speaker phone was not a major feature of the ICT for the three years of the project. It was used when groups went away on trips, and it was used on one famous occasion when Karen was at the Airport and had some exciting news to tell the children after their kindergarten disco. Karen meets a famous person, and gets out her laptop to show this person the video footage of Sadaf and her friends dancing.

> …. We leaned close to the speakerphone and listened carefully to what Karen was saying. Karen was at the airport and she had seen someone special. "Who?" we asked. "Carol Ann, from Dancing with the Stars" Karen replied … Karen told us what had happened. She had said hello to Carol Ann and told her all about the fantastic dancing which had been happening at Roskill South Kindergarten, and then do you know what Karen did next? Karen got out her lap top computer and showed Carol Ann the video footage of Sadaf and her friends dancing.

Mobile phones are used on trips to keep in touch with children and teachers who are back at kindergarten. The mobile phone was used on the trip to the Matoa Art Gallery in chapter 4. The mobile phone had a speaker device on it, so that the visiting group could talk to the children and teachers back at the kindergarten, listening on the speakerphone as well.

> *Commentary from a teacher.* Both groups of friends were then able to ask and answer questions to find out what is happening…..A few days later the other group went on a journey to Mt Roskill and phoned the kindergarten to tell them they were flying their kites and to go outside and look for them!. We have since used the mobile phones on our Zoo trip, when we have three groups exploring. It's a great way to keep in touch and to look after each other.

Toy Characters

The teachers began to suggest that children take 'characters' home with them, together with a camera, in order to encourage storytelling. Two in particular were very successful: Spiderman and the Lion. Children dictated stories to the teachers and sometimes to their families.

> *Book: The adventures of our kindergarten Spiderman.* During the on-going Spiderman Planning Story, the teachers and children purchased an inflatable Spiderman. Children took Spiderman home, with a camera. Their commentaries were written up and, together with the photographs (taken by the children or the families), compiled into a book. [The teachers also took Spiderman to a COI hui in Wellington and added their photos and commentary for a book entitled Spiderman on tour, shared with the children when they returned].

Making block people for story-telling play with the blocks

'Block people' are made by teachers, and sometimes the children, using photo images, laminated, and set into blocks. They are used by the children to tell and act out stories in

the block area. The story of Dylan doing the photographing for this process is told briefly in the next chapter.

Wall displays

The teachers are now working 'smarter' because of the new technology (each has a camera, each has a laptop), and have developed new routines around writing and reflecting on Learning Stories (see Chapter 7). These wall displays provide a focus of interest for talking to families; they also stimulate children's talk, see examples in Chapter 6.

Parent Voices

One way in which the teachers have encouraged communication links with families and children is to encourage 'Parent Voices'. Over the three years of the project at least one of these 'Parent Voices' have come from as far away as India (see Mayur's Grandfather's voice in Chapter 2). Gloria's mother added two handwritten Parent/Whanau Voices to her portfolio. The first contribution commented that Gloria loves going to kindergarten, her English is improving, and she brings home new ideas and new words. The second commented on her new sense of responsibility (she manages to open the fridge butter the bread and make a jam sandwich). She included some information about one of the activities that Gloria enjoys at home: gardening, and added that Gloria loves to show her file to people. "She was proud to be at kindy".

Teachers' Stories

During the project the teachers decided that in order to be reciprocal in their relationships with the families, and since they ask for 'Parent Voices' in order to find 'funds of knowledge' from the families as a communication link, they would write their own Teachers Stories. These have provoked much talk. Initially the children enjoyed naming the teachers, but the families have also found common interests and topics for communication. Many families with English as an additional language can read English if they are give time. A Teachers Story in the child's file allows exactly that; a quote from one of these and a follow-on story from Luke's family were included in Chapter 2.

Routines

Slide Shows

Slide Shows of the children's learning have become much more routine in the programme, enabling group revisiting and reflection. Video footage is also re-played at mat time; the teachers have noted that this has encouraged more language and raised expectations for adults and children. An example of Sin Jun's work being included in one of these slide shows is included in the next chapter.
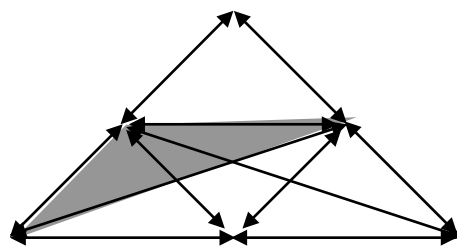
Dictating stories

Children are encouraged to dictate stories for their portfolios, inspired by photographs or photographs of their art work. These stories are read back to the children. The first story in Sadaf's file, a commentary on one of her paintings is as follows:

E S I K L I Y C
It's Sadaf, I used a flower.
This is a painting.
It's photo, boy, take it.
I like it!

A year later she dictates a story about her interest in 'spirals' in the environment:

"I saw a spiral when I went for my trip on the bus. I see an orange spiral it was on a chair and there was lots of growing up and it was growing bigger. There was my chair, and the spiral was on the other chair. It was inside the bus. I tell my mum and I want to take it home in my backpack. I want to do more spirals. Then when I get off the bus, there was another spiral, a pink one, down, down on the ground and then I went home I see lots of spirals on my swing pool, I see them in the water'. Said Sadaf.

Distributed power

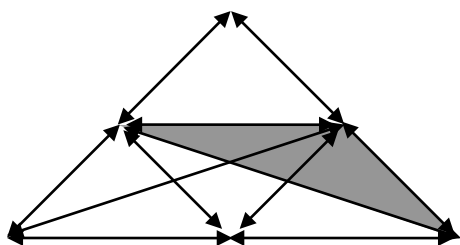The children are becoming very skilled with the technology, and are able (and willing) to teach each other. Nissa took the initiative to document a cooking session for the children's files, in the same way that Mehul had been a 'journalist' alongside Jacqui in Chapter 4. When Emily arrived at the morning session of kindergarten her brother taught her how to make a book (using the laminator and the book binder. Emily then taught her mother (who wanted to make a book of her music) and her grandmother.

Photographs and commentary on her 'passion' for book making:

What learning is happening for Emily? Seeing Emily in action today reminded me of her very first day at kindergarten, when she joined Brandon in the morning session. One of the first things that Brandon did with his sister was show her how to use the bookbinder and made a book for her. Brandon you were a great teacher. Emily is making her own books now!

Emily clearly had a goal set today as she worked and worked, asking for help when needed and working alongside friends and teachers until she had achieved the task she had set herself, making two books!….

*Possible Learning Pathways. …*I talked with Emily's mum about the possibility of Emily's family recording her stories at home, either in her first or additional language. Maybe more books!

The next story in the series was of Emily teaching her mother how to make a book and how to use the book binder (her mother had asked if she could use the bookbinder to make some music sheets into a book).

Can you show me? Asked Emily's mother? I suggested that Emily could show her mother how to make a book… (photos of Emily teaching her mother were included in the Learning Story).

Finally, Emily taught her grandmother, demonstrating and instructing in her home language. Photos of this went into Emily's file as well.

Community

The teachers have been able to find spaces for home languages. Sadaf, for instance, translates for his mother and back to the teachers. An example of this was when the teachers sent a camera home together with the bird house she had made for home.
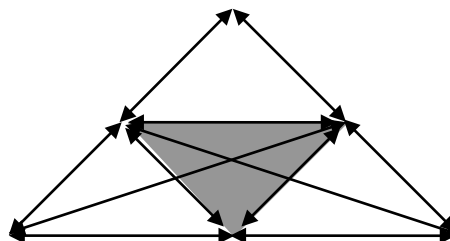
Families have used their home languages to revisit learning with their children, for instance Jaime and his mother watching the video footage of his play as he tried to find the name of one of his new friends. These ongoing videotapes for each of the children are regularly taken home and shared with the family.

Jaime had been talking to his mum about a friend he had at kindergarten. Jaime's mum asked me who the friend was. I didn't recognise the name that Deng cai had said, but then I recalled that I had just put some video footage on Jaime's videotape of him and his friends playing. I put the tape in the video machine and Jaime and his mum and I sat down and together watched the footage. Jaime's mother spoke to Jaime in his home language and pointed to the screen… I was able to tell Jaime's mother that Jaime's friend's name was Alex.

Children who have left can still be part of the kindergarten's teaching and learning community. Freya has turned five and gone to school. Her mother teaches at the kindergarten and writes this story.

We had been discussing ways of integrating te reo into our programme in a more meaningful way, and I mentioned that Freya (who is at school in a Māori immersion unit) was learning many songs in te reo Māori and that I had an idea that would not only bring reo into the centre, but would also form connections with her school and the wider world.

I took the video camera home and began to record Freya as she first explained the songs, and then sang them including the actions for the children to learn. We put these songs onto the computer that we have at the kindergarten for the children to use so they could simply click on the file (on the desk top) to watch Freya sing.

Sadaf in particular was fascinated by this and watched Freya many times. I incorporated the video footage with singing at mat time and

was amazed at the number of Māori words the children recognised, simply from having heard Freya singing the songs during the session. I also downloaded stills from the footage and hung them above the computer so children had a visual cue as well.

Not only did this filming enable us to incorporate te reo Māori and new waiata into our centre in a way that was meaningful, It also brought up lots of rich conversation around speaking other languages, as many of our children do. It also enabled us to bring the outside world into our kindergarten.

SUMMARY OF THE CENTRE OF INNOVATION PROJECT INTEGRATING ICT FOR THE FOLLOWING GOAL: EXTENDING COMMUNICATION COMPETENCE

- Children are becoming multimodal: competent with visual, oral, and physical modes of communication and representing.
- They are teaching their families how to use the ICT.
- Their language is developing, as activities are structured to invite questions and answers, as with the speaker phones.
- Revisiting and re-telling episodes from their files has provided a site for language development. Children arrive at kindergarten with almost no English, and are usually capable in English when they leave. In the next chapter the point is made that the teachers now develop public expectations that children will speak, via slide shows and videotapes of them competently doing so.
- Another example of bridging and structuring has enhanced the children's dictated stories: taking toys home with a camera.
- Children negotiate and talk more, as they discuss wall displays.
- Parents write Parent/Whānau stories in the children's files. They write them, usually, in English even when they are themselves just beginning to learn English.
- More Parent/Whānau stories and more talk with families have been fostered by the introduction of Teachers' Stories at the beginning of the portfolio, and Welcome Stories on the first day at kindergarten.
- The teachers have recognised the value of spaces for home languages to be spoken at the kindergarten, and these communication links between home and early childhood centre are appearing.
- Children's story-telling competence has improved, in length, complexity, coherence and narrative continuity. The routine of dictating stories for their files has fostered this development. Informal story-telling in play has been enhanced by the children's 'Block People'.

Chapter six
Collaborative dispositions and children taking responsibility

BACKGROUND

Learning is a social matter. Social context is not simply a background factor in learning, supporting the transmission of information. It is the site of knowledge construction. Furthermore, social skills become collaborative dispositions through practice. Immersion in an early childhood programme that is collaborative, and where responsibility is shared between adults and children, is an especially effective way to turn social skills into dispositions.

> "Numerous studies have documented the learning potential of contexts of reciprocal and responsive relationships with others: episodes of joint attention where, as Bronfenbrenner put it, the 'balance of power gradually shifts in favour of the developing person', or where the balance of power was always with the learner".[23]

Early discussions in the project recognised that the social context is a complex matter, and that reciprocal and responsive relationships connect together with empowering children and being holistic. One of the teachers commented:

> *"I think my vision is of the enormous complexity and depth that you will get in reciprocal and responsive relationships .... Empowering the children. The children asking questions on the speaker phone, that's part of that, so you've got a lot of layers of those principles, the whole holistic thing."*

We did not anticipate that the children would take on as much responsibility for the integration of ICT. We discussed whether the teachers' using more ICT would mean that they would interact with the children less, i.e. that the computers would be a barrier to social interaction. One of the teachers responded:

> *"No … Just because you've got the equipment I don't think you (will be) recording any more. It just makes it easier. You might be recording … their learning and sharing it with them quicker than not having the technology, therefore that does fuel the children's learning, it has a spin-off effect. But just because you've got the technology it doesn't mean to say that you're always using it."*

Prior to the project, the teachers had noticed that children will be inspired by other children's examples often after a long period of time. They cited Fe'ao, who wanted to write a story about Fuka's hen visit six months later. They had also been aware, from their photographing, of how many children spend a long time watching others: a long gap between taking an interest and being involved.

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[23] Carr, M. (2001). *Assessment in early childhood settings: Learning stories*. London: Paul Chapman p.34. Bronfenbrenner, U. T*he ecology of human development.* Cambridge Mass. Harvard University Press (1979) p.163. See Carr pp. 7-11 for some ideas about the transition from skills to dispositions.

DURING THE THREE YEARS OF THE PROJECT

Distribution of power
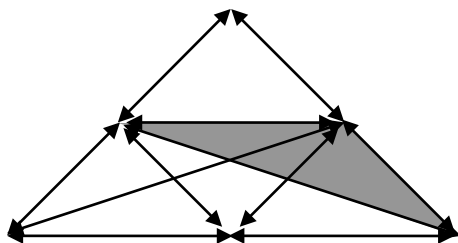
This chapter is essentially about the process of shared responsibility for learning and documenting, and it will be entirely about the distribution of power (or expertise) that gradually shifted towards the children.

Sharing expertise

The children and the teachers used digital images (video and still) to document expertise, in order to share this with others, to provide ideas about how to proceed, and to motivate other children to have a go. Samantha was watching Tulua on the monkey bars and announced that she wished she could "do the monkey bars like Tulua and go right to the end". A teacher photographed both Tulua and Samantha for their portfolios, recording both the expertise and the interest. She added "Tulua is such an expert perhaps she would like to teach her friends and support their learning as they develop their technique". The next story recorded and described Tulua's technique in some detail. It also recorded other children practising. These photographs formed the background for the children's visit to a local gymnasium (see the visit to Katelyn's gym in Chapter 2).

Documentation on the wall

The children had begun to 'claim' wall space for their work. The teachers added their own 'provocations'. These inspired collaborative talk and negotiation.

> *Slippery Fish.* On one occasion Jane had printed out pictures of the fish that go with a popular song called Slippery Fish and added them to wall space. Elizabeth and Jathusika were looking at them. They knew Great White Shark but they couldn't remember what 'Humongous Whale' was called. Tina arrives: 'Great White Shark'. Jathusika: 'No! No! No! That Great White Shark (points)'. Then Miles came along and said 'Humongous Whale'. And they all cheered.

In discussion the teachers added: "We played it at mat time and the two girls happened to be sitting next to each other and (you should have seen) their faces when they saw themselves on the big screen". A researcher asks "So playing it at mat time also adds more language?" "Yes, and it's like a celebration. It also lets everyone else know here that actually Jathusika and Elizabeth are good at talking, so we can all expect that now.

Planning stories

The wall documentation also encouraged children to see others as experts and to seek inspiration and advice from them. These wall displays often combined pictures from web sites and drawings and pictures from home. The teachers began to realise that children and teachers were working together to develop what they called Planning

Stories around children's interests. Often these began with one child's interest and observation and documentation and revisiting encouraged other children to become interested and to join in. One such Planning Story was Spiderman. Hamid, had a display of his Spiderman and superhero drawings on the wall, together with pictures from websites. Joseph began to draw, looking carefully at Hamid's drawings (but drawing very differently).

Sin Jun also used wall space to develop his ideas about Spiderman Batman and Superman, adding a mobile of paintings of his name with laminated photographs of himself at work. Other children contributed.

Teachers put the series of studies of Superheroes onto a Powerpoint and showed it at mat time; children explained their work as it appeared.

Children encouraging others

Videoing the work

Elizabeth and Jathusika had made constructions with wood, and a teacher was videoing the constructions and interviewing the children for revisiting at mat time. Jathusika explained her construction and the teacher said "What about yours Elizabeth?" Elizabeth doesn't reply until Jathusika elbows her and says "Go on". Elizabeth then explains that it is a bird house.

Teachers using video to make expertise public

Tina's construction of a fish was videoed. The teachers comment at mat time when it is replayed: "So tomorrow if you would like to make a fish from the story you could come and ask Tina to help you".

Children teaching each other to use the technology

The children taught each other to use the cameras safely. Chapter 5 included some detail on Emily teaching her mother and her grandmother to use the book binder (and her brother Brandon had originally taught her).

Learning Stories about sharing expertise

A story is written for Joseph, with photographs.

Joseph writes

Today Joseph had been listening to his friend Feliti. Feliti had been writing his name. Joseph said "I can write his name too". And he set about writing Feliti's name on his paper, looking over at Feliti's page to check out what the next letter was. When he had written Feliti's name he said "Now I will write my name" And when he had written his name he said "Now I will write Sharan's name. Sharan how do you spell you name?" Sharan came over to the table and wrote his name down for Joseph. Joseph went on to ask Pubi how to write her name too.

What learning is happening for Joseph?

(This section of the Learning Story includes comments about Joseph being capable and confident, and his developing literacy skills). It adds:
Today Joseph also took on the role of the expert and showed his friend Letiti how letters are formed. I wonder what Joseph will write next?

Children documenting

One of the teachers described how she was reading stories to one of the children and 'really wanted a photograph taken'. The other two teachers were busy, so she asked Sione, who was not busy, to take a photo. He did.

Alisha took photographs of Thea's work and dictated the commentary:

> *Alisha documents.* I take a photo of a letterbox and a tree. There was an elephant swinging in the tree. Thea put the elephant in the tree. Thea painted the letterbox black, and the tree trunk was green. I take the photos and they come off the camera. I like books, I use the camera because I like what Thea was doing.
>
> The teacher added a commentary on WHAT LEARNING IS HAPPENING FOR ALISHA:
>
> Alisha has watched the teachers documenting the children's work over many months and today she decided that her friend's work needs to be recorded. We have all noticed that Alisha is an extremely confident and competent learner, and today this shone through as she directed her own learning and began to capture her friend's achievements.
>
> Alisha understands the importance of noticing her friend's work and recognising the significance of what has taken place. Alisha was able to capture Thea's work and explain to me what she had done and why she felt it needed to be recorded.

Children using documentation to encourage others

A story is written about Freya falling off the balance beam. She was a little apprehensive about having another go.

> #### Dylan's encouragement
> …..."Come on Freya" Dylan said with a smile. It's OK. I'll hold your hand if you like". Freya was very impressed with Dylan's kindness and took up his offer. Together they worked their way across the balancing beam….They reached the end and Dylan helped Freya off the beam.
> Then he suggested that he could document Freya's achievement so she could remember how to do it next time. Freya thought that was a wonderful idea and together they asked me for the camera.
>
> Dylan stood like a pro, holding the camera in one hand while adjusting his position until he had the perfect shot set up. Here is Dylan's record of Freya's triumph (photos attached to the Learning Story).

Earlier in the same term Dylan and Jane had been constructing Block People from Thunderbird stickers. Jane began to document Dylan's work. Halfway through the process Dylan suggested that he should do the photographing while Jane did the gluing. The teacher wrote this up, and commented "Thankyou for helping me Dylan. You have just documented your own learning".

SUMMARY OF THE CENTRE OF INNOVATION PROJECT INTEGRATING ICT FOR THE FOLLOWING GOAL: COLLABORATIVE DISPOSITIONS AND CHILDREN TAKING RESPONSIBILITY

- Children's expertise is described in detail with photographs and commentary, shared in slide shows with other children. The expert is more informed about her or his skills, and other children begin to try out their skills as well.
- The documentation is often accompanied by the children's words: describing their expertise, their teaching of others, or an accompanying story.
- Children practising is highlighted as a valued strategy.
- Wall displays act as provocations for collaborative discussions.
- Video clips of those collaborative discussions, made public at mat time, encourage the view that these children are good at talking, raising expectations. Children begin to participate in conversations.
- Videoclips of children's work, plus commentary by the teachers, encourage children to teach others. Many children were teaching others.
- Children became experts with the technology, especially the camera, the book binder, and the laminator. They taught each other these skills, and reminded each other of safety considerations.
- Long term planning stories developed as children learned from each other, e.g. the Spiderman series.
- Children document their own work, and document the work of other children.

Chapter seven
Managing the system and reflecting on the learning

This chapter refers to Research Question (i): 'Integrating both laptop and desktop computers into everyday practice in an early childhood centre: is this a workable model for teachers?' We have called it 'managing the system and reflecting on the learning'. These systems are about optimising the capacity of ICTs to mediate learning. For example, a digital camera is only a mediating tool if it is available at the right moment, is charged up with available space on the memory stick, and people know how to use it. Furthermore, its use will be optimised if all the teachers share ideas about ICT and the local curriculum in an ongoing way.

During the project we had identified three purposes for these systems: (a) technical, (b) equity, and (c) quality & continuity of the documentation. Three quotes introduce these purposes.

> *Purpose one: the technical*
> T1: [One of the parents who have moved to another centre] was saying to me "It's quite different because they've got this one camera and they wanted to take a photograph, and they couldn't take a photograph because they didn't have any batteries and [they weren't charged up]. And so I said to her "Oh, we were like that. We were a bit like that sometimes, but we sorted out a system…"
>
> *Purpose two: equity*
> T2: I think it was one of the major action research cycles of working out systems around how are we going to develop an equitable assessment system for all our children. .
>
> *Purpose three: quality and continuity.*
> T3: …we were always rushing off to write our stories but with actually taking this time [to reflect and share together] and not rushing off to write them, and having a twenty minute period for talking, we then were completely on track as to what stories needed to be written.
> T1: Can we talk about connecting stories?…
> T3: (We look) through the portfolio to see has this happened before. And if it has, how did it happen?

All these three purposes are closely connected to the children's learning. This chapter uses the teachers' voices to reflect on the systems that they have been trialling in order to enhance the value of ICTs for learning. In terms of the Activity Theory triangle, this chapter is about the links between *artefacts* (the ICT and the documentation), *routines* and the *object* (integrating ICT to implement Te Whāriki). At the same time there was much discussion about the value of sharing ideas together: the learning *community* that the teachers have established.

Developing systems for the technology: the artefacts
> The storeroom is now being tidied up so we can actually have access to it and the bench is allocated for all the equipment like the cameras and we have a spot where they go, and video cameras and anything else that's there. The battery chargers are

there with the batteries, and the cameras have been downloaded from the previous night, so that when you come to use them the next day, they're charged up or there are batteries being charged so that you can soon put them in and they are ready to go. The memory stick is free so you can just get it and take it rather than have to think, 'Where's the batteries?' … But having that in there just cuts down all that messing about of 'Hang on, I've got to go and download'.

We've got hooks that our cords hang on, you're not going in there going, 'Where's the thing? I have to download a file', you know, it's there … bang! You've got it, or it's round your neck, you know? Everything's got a place.

So that's part of your system, allocating your own camera...
 …..That then got us thinking about the cameras, because sometimes I'd be using one camera, and then the next thing I go and pick another camera up and I'd have to either remember which one it was or download all three. So then we thought right, how about we just allocate ourselves, seeing we've got three cameras, a different camera each. So we put stickers on them in the end.
I said (to some visitors) 'I can't imagine only having one camera now. Because now you usually all have one in our pocket and if you look around often you could be all using them at the same time or you want to keep it on you because you're documenting a journey or something.

It's been important for your system to have three computers hasn't it? Because you're all sitting down, each on a computer, at the same time.
Oh, it's crucial.

Developing systems to support time to reflect together: routines
The teachers organised a high school student three days a week after school to tidy and set up the basic environment: sorting the collage resources, hanging up the dress-ups and so on. The teachers now have a debrief session about the day.

> So we decided that we needed to have some time to talk together as a team at the end of the day, just to reflect on what we'd noticed and recognised and responded to that day … and we wanted to share what we'd been noticing and recognising and responding to and what stories we might have been writing or that we've noticed evolving. We have good communication within our team, but I didn't realise that it could actually be better.

> *Parent help?* We've sort of gone back to the … ages ago we rostered in parent help, and then when they come in and put their sticker on the date, and they would come in and they would help for that day. And then we got away from that, and just recently we got back into asking for more parent help … just to have someone to come and do morning tea.

> We value our morning tea system and like the way the children self help and make their own toast and all that sort of stuff, but it was actually taking a teacher away from working with the children.

A teacher aide comes in on a Friday afternoon
The Friday afternoon teacher aide comes out of our equity funding. She starts at one end of the kindergarten and goes to the other and puts everything back in its place and sorts everything out and files artwork and does the paint pots and all the play dough equipment.

Developing ways to effectively reflect together: the community of teachers
So do you take notes during the day? How do the discussions go?
It's more the case is if I've seen something about … like with Dylan for example, something that happened today and I thought, 'Oh, I'll write that up as a story'. Or sometimes it might not be something that I will initially record as a story, but I will keep it in the back of my mind… like last week, when I videoed Alex last week doing something, and Karen said, 'Oh yeah, I noticed him doing that another day …' so then we're sort of realising there's things going on …

And it could end up the next day I might see Alex doing something similar and I write the story, but I mention in the story that I've discussed these interests with Karen and Jane prior to today's episode…

So in some ways it's cutting down our work.

Reflecting can add depth and continuity

And sharing … you know, two people might have noticed the same thing on any one day … well then one person can write the story and so the other person's freed up to write another story.

Having a twenty minute period for talking, we then were completely on track as to what stories needed to be written.

I might have noticed something and thought, 'Oh, I'm not sure if this is really going to be a story or not. I don't know', you know, you kind of grapple with the ideas with the other two and they might say, 'Well I know such-and-such', and Jane might say, 'Ooh look, I really want to write it now, so okay, I flick my [involvement] to her.

Strategies for shifting into documenting the learning

So there's probably four ways.

One is just you're remembering … you haven't written anything down but you just remember and so you can talk about that,
another is you've jotted down some notes ……
another is you've taken some photographs,
another is you've actually videoed an episode,
so you've got all of those things, some of which you'll remember and could share … not all of it you'd be able to share, but those are the things that you're just trying to get down.

But you will also sometimes write stories during the session

They'll often come looking for us now, won't they, to write their story, because that's what you do. They'll say, 'You need to … can you come and sit with me 'cos I've got to tell you my story'.

Opportunities to discuss quality of documentation, and to recognise learning

So how do you judge … when this is going to be a good story
Sometimes I've found it's the children that haven't been in the limelight, and then something happens that cues you into them, … you then reflect on what's been going on beforehand. …. So, something that's new, that they might not have done before or they might have been doing but now moved to another level, or it's sometimes that you haven't actually *noticed* them doing it at all, you're just more cued in to them for some particular reason. So that's one way. And it's different for different children and so by having the debrief we're gaining insight to the different things that have happened during the day for that particular child, as well.

I think too, it's remembering the framework of dispositions, you can sometimes forget and I know just recently I've been remembering them a lot more and making them more visible in the children's stories.

Can you think of an example where there was a story that one of you wrote which was about the child moving to another level?

Yeah, with one child, it started off with him last year, trying to convince everyone else to draw for him and then coming up with the idea of using the photocopier to photocopy the images his parents had drawn for him at home, so he could colour them in.... And so this particular day I was just chatting as I was working and I said 'Oh, I'm not quite sure if I know how to do Spiderman's eyes', trying to prompt their engagement, and he goes, 'Yes you do, remember, you did it before'. And he was meaning last December [several months previously], and he started drawing. And he had a whole page of eyes and he said, 'I'm just practising', and so he's now the teacher and his friends around him are watching him.

[One of the children] brought an Incredibles book in. She's deeply interested in the Incredibles and Batgirl. And I finished reading it and I said, 'Oh I wish we had a book like this at kindergarten' and then another child pipes up and says, 'We can make one!' and I was a bit blown away because I wouldn't have expected that from her…. And she spent the rest of the morning drawing the characters from it and looking … and going back and renaming them….And so for her that was important, to follow the whole process through.

[Another child] He's been watching for a very long time, and not really that engaged in that area until one day he starts drawing, and I think he's now letting go a little bit of his perfectionism and realising that he needs to experiment and that his pictures don't have to look how they are in his mind.

We read the short term reviews out to each other …

Just hearing someone else's short term review helps you?
It sort of motivates you too I think.

……I said, 'What?' and she said, 'The maths lens', and I said, 'Oh, yeah'. … so it does help to throw ideas around with each other. But you do see different things too.

Can we talk about connecting stories? I went to that short term review workshop and we were talking about connecting stories.

Like if I see something happening I might go and get their portfolio and as I'm working with them I'm flicking through it to see has this happened before? And if it has, how did it happen? And if it hasn't, is there some other connection in your file that's leading to this that's happening now?

So by sharing them, for me, it's made me more confident in sharing mine because I'm listening to other people and thinking, 'Oh that's a good idea', and then when other people say, 'Oh I like that part' it makes you want to share it more. And so I think that your story writing does change, and also knowing the children. And I have to remind myself too, I'm not writing it for me.

But at the end of the day, how we work together is what impacts on the children, conversing with each other, and also asking questions.

Possible planning pathways and opportunities for revisiting the learning

So what we've written on the whiteboard at the moment is … possible planning pathways. So these are some of the patterns or pathways that have already been done. Making a book; having one child as an expert to refer to; revisiting planning books; making a film; taking something or taking the camera home as a kind of provocation for story telling; and then there were two aspects of taking photos that might lead into a slide show or a PowerPoint story that would be shared with the children. And five ways to reflect on and revisit the learning: one is the portfolio or file; another is using a laptop; one is the big screen at mat time; and another is just plugging the camera straight into television. Also just talking and remembering.

And what we've found is that our debrief sessions have enhanced our ability to notice recognise and respond during the following sessions, because you've got more knowledge about children stored. You're getting to know the children a bit more. (Our teaching) is developing to another level.

And you start to notice things. And I think one of the spin-offs has been … after you debrief, the next day or whatever I'll see (one of the other teachers) working with someone and you know what they're doing and so you start documenting for them

without even having to ask whether they want photos being taken and it doesn't matter if you take them and they don't want them anyway. But like … I think, 'I know why you're working with that child', because yesterday we talked about reading more stories with …… And so you just start supporting each other.

Supporting the wider community: relationships with families
Starting the documenting early
…. And I used to think I needed to wait for something to happen, and then I should give them time to settle in to the kindergarten, find a sense of belonging etc, but then I found that I didn't go back to them….

But actually that's (documenting early) important.

Systems for equity
And that's where the debriefing becomes really important because we might notice that we're talking about the same children all the time, thinking … well what about the other twenty, and what's happening with them.
And the theory behind this is that when you've written a learning story and you've printed it off and you've put it in the child's portfolio, you put a tick beside their name. At the same time you put the story from your computer into their digital portfolio. And so we're wanting to make the system more fluid where you just do it. It's really for us to be able to keep track of the stories that have been written for this month and it's for the child so at a quick glance you can see the children that you are missing. Like this is … we're just sort of trialling.

There is a very powerful argument here for reflection time for teachers. Preliminary findings indicate that these microsystems are important and can be improved in a number of ways. Some working conditions and the systems they require cannot be immediately changed (the staff-child ratio, for instance) and represent constraints to optimum practice. This is work in progress. As one of the teachers said:

> And sometimes you know, your first system doesn't work and sometimes you think, taking the time to set up the system is taking up too much time, but you know, once you've done it and you find the way it works for you, you realise how much more time you have, but for other things.

SUMMARY OF THE CENTRE OF INNOVATION PROJECT INTEGRATING ICT FOR THE FOLLOWING GOAL: MANAGING THE SYSTEM AND REFLECTING ON THE LEARNING

- Good management systems optimised the capacity of the ICTs to mediate learning.
- Good management systems optimised the capacity of the teachers to reflect on (and improve) their pedagogy (including their use of ICTs) for improving children's learning.

- Management systems had three purposes: technical, equity, and quality and continuity. All three purposes contributed to the enhancement of the pedagogy and the children's learning.
- Management systems for technical efficiency were about the artefacts: it included managing storage space, managing time to download photographs and charge up batteries, and managing the allocation of cameras and computers.
- Management systems for equity included finding ways to clear time for reflection, and to use that time in a focused and routine way to revisit the documentation and to explore possible planning pathways for all the children.
- Management systems for quality and continuity of the pedagogy included these same innovative ways to clear time for reflection, and to use that time in a focused and routine way to reflect on the quality of the use of ICT and the learning stories, to avoid repetition, and to discuss continuity of learning and ways of including that continuity in the documentation.

Chapter 8
Reflecting on the research project

This report confirms the view that ICT belongs as a mediating tool in a collective activity system. In this project the whole sociocultural setting was the unit of analysis. We have adapted the Activity Theory triangle to describe the elements of this system as artefacts, community, the distribution of power, and the routines. We began this Report on identity, and can now add detail to the 'identikit' or a distributed view of developing a learning identity. It is mediated by: competence with artefacts that set up meaning-making devices and bridges between participants in a community; authentic connections to family; opportunities to take responsibility; and routines and conventions that engage children and structure their participation. It is about responsive and reciprocal relationships with people places and things, empowerment, holistic approaches, and the involvement of family and community.

That reference to the early childhood curriculum principles says that, for this project, Te Whāriki has been an important starting point. When Bonnie Nardi compared situated action, distributed cognition and activity theory[24] approaches, she reminded us that intentions or goals provide the pivot for activity theory:

> In activity theory, activity is shaped first and foremost by an object [*intent, or goal*] held by the subject; in fact we are able to distinguish one activity from another only by virtue of their differing objects…. Activity theory emphasises motivation and purposefulness and is optimistic concerning human self-determination.

Te Whāriki (another mediating artefact) has provided us with those pivotal aims and goals and 'objects' (and optimism concerning human self-determination or empowerment). The aims of this project paralleled the strands in Te Whāriki.

> "Human nature and needs were not changed by the invention of computers. Human values endured even during the dramatic growth of information and communication technologies….. Human relationships grow when there is a shared history of positive experiences."[25]

Most activity theory descriptions set out mediating devices in the activity system as a conceptual map displayed as a set of interlinking mediational triangles around the central purpose: the subject (in our case, the teachers and children) and the object (in our case implementing Te Whāriki with ICT).

The simplest triangle is formed by the *artefacts* and the *subject* and the *object.* There were three central *artefacts* in this project: the ICTs, the Te Whāriki framework, and the Learning Story framework. This was a particularly powerful combination.

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[24] Bonnie A. Nardi (1996). Studying context: a comparison of activity theory, situated action models, and distributed cognition. In, Nardi, B. A. (ed) *Context and consciousness: Activity theory and human-computer interaction.* Cambridge MA: The MIT Press. Chapter 4 pp. 69-102.

[25] Schneiderman, B. (2002). *Leonardo's laptop: Human needs and the new computing technologies.* Cambridge Mass.: The MIT Press p.77.

A more complex mediational triangle is formed when it is acknowledged that the subject exists in a *community*, which has a *distribution of power, authority or expertise* and *rules & routines*. *Rules & routines* include implicit and explicit beliefs about learning and the image of the learner, as well as systems that changed the time available, and systems that the teachers develop for 'working smarter'. Systems, working conditions and external requirements can be both affordances and constraints on the central purpose. The activity triangle that framed up this Report (Figure 1) is repeated here.

Artefacts

Teachers
and children

Implementing Te
Whāriki with ICT

Rules and routines   Community   Distribution of power
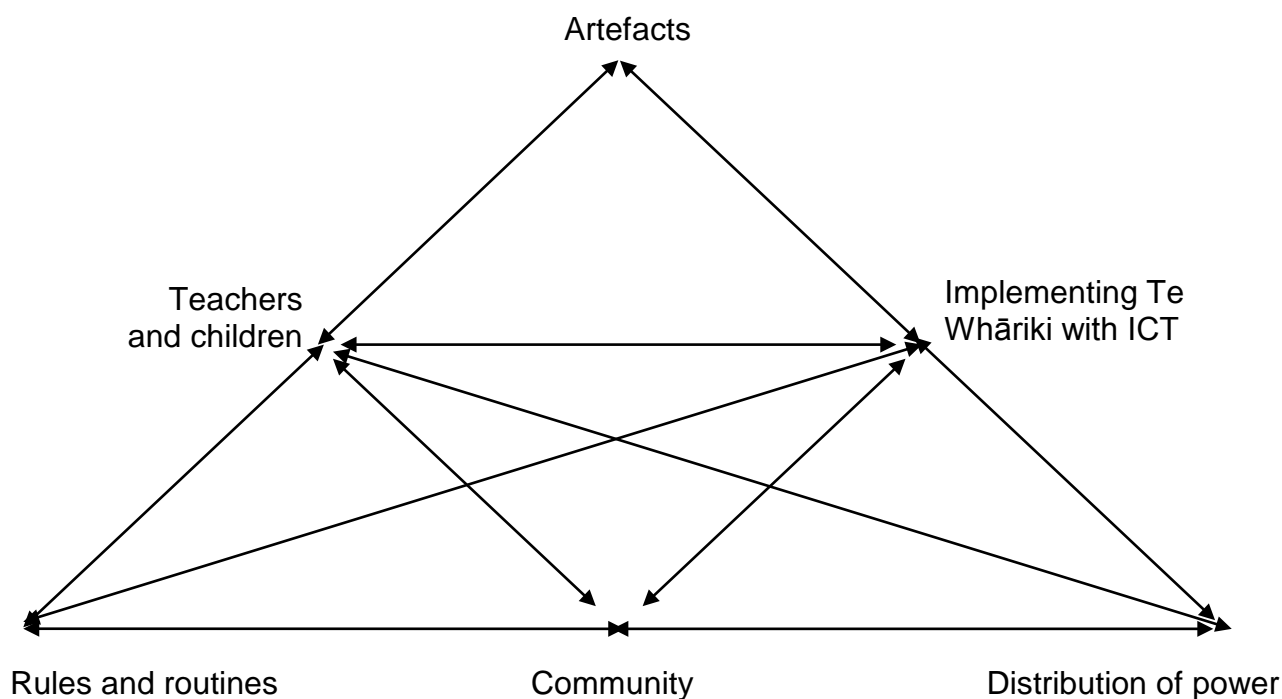
The *artefacts* in this project were not just those of ICT: computer, computer software, cameras, bookbinder, photocopier, telephones, fax machine, for instance. They also included assessment formats and a published curriculum. But the digital modes of communication were significant for these children and families: by the time the Roskill South children went to school most of them were not only bilingual (or multilingual), they were multimodal as well. Visual modes of communication have provided them with not only a transitional language as they become more competent in their first English language or in English as an additional language; at the same time they have developed a mode of communication that will be valuable for learning over their life time. Innovative use of technology, together with sensitive and skilled teachers, has also encouraged the children's confidence to express themselves orally.

It has always been a principle in early childhood education that working with families and whānau (the wider *community*) is important. This project has illustrated how the use of ICTs has made connections with families, and included them in the teaching and learning endeavour of the kindergarten in authentic and exciting ways.

The distribution of power during this project has reflected an image of the child as highly competent, and an image of a teacher as someone who can share the expertise and the teaching role with families and children. Teachers at Roskill South kindergarten

have continued to find innovative ways to structure activities using ICT to make sure these images are part of their practice, enabling the children to take responsibility and to develop identities as competent learners.

Routines have been set up for educational purposes, and there are many regular events that are familiar to children: they are the ways that we do things here. Revisiting learning episodes is a key routine, important for development in ways that were outlined in Chapter five. But managing the technology, the technical details of storage and accessibility, has been important as well, releasing time for the teachers to reflect on their practice and share their ideas. Preliminary findings from reflections on 'systems for managing the process' indicate ways in which (micro)systems can optimise the affordance of the ICTs: freeing up the time to work with children and to use the ICTs for learning; documenting for families early in order to develop relationships and encourage their involvement in the documentation; and keeping the technology well organised in order to 'work smarter'. In particular, the reflection time is of inestimable value, and there is a strong message here about the links between microsystems, the opportunities for a community of teachers and learners to reflect on learning together, and the learning outcomes for children.

This project has been more than about the children's identities as learners and teachers. It has also changed the researchers' and teachers' identities as researchers, teachers and learners. Opportunities for reflective practice have shifted the views of all of us about doing research, being a teacher, competent children, and learning. We have all become teacher researchers who are engaged in learning, and we now know what is possible. The researchers have been enabled to see how the theory works in practice, and to modify the theory because of this, using activity theory in a particular way to describe *this* community of learners and teachers. We have all got to know Te Whāriki better, and seen new possible avenues for Learning Stories. As the teachers have integrated ICT with Te Whāriki in innovative ways we have seen what integration can really look like. We have begun to notice and recognise the features of multimodal learning, and to appreciate its power and significance.

Team Reflection - Karen, Jane and Jacqui
What COI has meant for our team

Jacqui joined our team in October 2003, the COI project had already began, as a team we took time to rebuild and develop team relationships.

Reflecting on our teams' journey during the three year COI project we can now see we have a greater understanding of our curriculum, Te Whāriki and what the principles mean for us as a team.

Just as the principles are embedded into our teaching and learning practice with our children/families and whānau so too are the principles embedded into our team relationships and ethos.

Our team ethos is built on responsive and reciprocal relationships, which includes trust and honesty. We view each other as capable and confident learners and empower and support each other to discover our full potential. We share and celebrate individual qualities, as well as our team's collective strengths, passions and interests. The team environment supports teachers to explore, contribute and challenge as they develop their own working theories.

Being a COI has deepened our understanding of shared leadership within the kindergarten community as well as the wider ECE community, national and internationally. We have developed our skills to disseminate and share our innovative teaching and learning practice. We have supported teaching teams to advocate on behalf of their children, families and whānau, making a difference for their learning.

We have viewed the COI project as a fantastic professional development journey, as our recent ERO review states.

> *"The last ERO review of Roskill South Kindergarten in 2002 identified high quality practices in all aspects of the curriculum. As a result of their ongoing involvement in extended research and professional development teachers continue to be positioned at the forefront of excellence in early childhood education teaching practice."*

The COI project has been a journey, and what a journey it has been, a journey that will never end, because when teachers are researchers they are empowered to reflect, dialogue and continue to discover what is possible.

> *"It is good to have a destination to journey towards but it is the journey which matters in the end."* [26]

Jacqui - What being involved in the COI project has meant to me

I began at Roskill South Kindergarten after Karen and Jane had applied for the Centre of Innovation project so I was a little unsure of everything that was about to take place, but what struck me from the day I began here was the team's strength, their dedication to best practice, and that the children's documentation was first and foremost in their minds.

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[26] A quote from Ursula LeGuin (2000) in Pinkney, M. *The complete pocket positives*. Five Mile Press (no page number).

Being involved in the COI project has enabled me to truly find myself as an educator. Previously I had worked in different centres that varied in their journey towards creating strong teaching and learning strategies. I felt I had come to a standstill in my teaching journey and although I didn't quite know what I wanted, I didn't feel I was being true to myself as an educator.

Being part of the COI project has enabled me to work alongside dedicated practitioners (Karen and Jane) and establish strong working theories. I have been able to rediscover my passion for teaching, and have built robust relationships with our community. I have been able to watch and soak up an atmosphere that is rich with experiences and embraces children as self directed, capable learners and I knew, although I felt a little out of my depth that I had found my next challenge.

Part of our COI research included the idea of children being capable and competent, and this enabled me to really deepen my understanding of the learning stories model of assessment and gave me the opportunity to practice developing my own strengths and passions within the Kindergarten.

The COI project has also enabled me to experience the true meaning of shared leadership and that has encouraged me to step out of my comfort zone and take up challenges I previously would have been too unsure to tackle. For example, I have participated in constructive analysis at hui, which has given me an insight into the other interesting projects that are taking place as well as giving me the opportunity to strengthen my abilities as a teacher/researcher.

I have participated in visitor's mornings where I have presented our journey to guests from around New Zealand and further field.

I have been able to work alongside the Ministry of Education when our Kindergarten was chosen to appear in two of their educational videos, and I have travelled with Karen to share our work with the teaching teams from the Hamilton Kindergarten Association.

It has also enabled me to develop my ICT skills and to record children's learning and teaching in a way that is meaningful (i.e.: to be confident in using a digital camera and video, a laptop and desk top computer projector and related equipment, fax, photocopier, laminator, book binder etc.).

The COI project has enabled me to grapple with my personal teaching philosophy and has given me the strength to play devils advocate, and to challenge my own thinking. I have been able to explore and strengthen the ways in which I view children's thinking and learning and have deepened my holistic perspective on teaching. I have also been able to strengthen my ability to *notice* a developing disposition, to *recognise* the learning that is taking place and to *respond* to that learning in a way that is meaningful to that particular child's learning journey.

I feel the COI project has deepened my understanding of what it means to be an educator and has enabled me to truly understand the power of integrated ICT's and its ability to capture children's learning in a way that is accessible and meaningful to children, families, and beyond.

Jane - What being involved in the COI project has meant to me

Looking back on the three years of the C.O.I it is amazing to think how fast the time has passed and how much has happened. At the beginning of the project I had a feeling of uncertainty and lots of questions, for example, So what will happen at the hui'?

Will I have to actually stand up and talk to people?

What do you mean teachers as researchers? I think that's beyond me.

Well as the project continued those questions and feelings soon began to develop into 'deeper' more self-reflecting questions, discussions and affirmations about the important work/research I was involved in.

In a way the Centre of Innovation project has been huge professional development for me, only instead of it being one day it has lasted three years! During that time there have been many challenges for me and times where I have had to take that step (sometimes giant leap) out of my comfort zone, which I doubt I would have done so without being involved in the project (at least not without running away first!)

Through the project I have developed a variety of new skills and stronger affirmation in my own ability as a teacher as well the importance of my role as a teacher.

For me the C.O.I hui became a time that we shared our learning with a supportive team- the other C.O.I s and learned from them. Having that supportive nurturing environment was of great benefit to me.

Three years ago if someone had told me that I would be taking on the role of teacher researcher, talking to groups of people, meeting other teacher researchers from the rest of New Zealand as well as many from overseas and last but by no means least being part of important work which would have a positive and strong impact in the education field nationally and internationally, well I probably would have thought that person was very much mistaken!

As the three years of the project draws to a close I wonder when the next person will appear to comment on the next three years. With all the practice I have had in 'reflecting' perhaps I should ask myself that question,

So what will the next three years bring…………..?

Karen - What being involved in the COI project has meant to me

I remember the day we received the phone call from Anne Meade notifying us we had been selected as a COI. It was a dream come true, being selected as a centre of innovation was going to give us support to achieve our vision for integrating ICT into our teaching and learning practice. A journey we had already began but we could see that the COI project was going to have huge benefits for our children, families/whānau and us the teaching team.

I remember a feeling of absolute excitement and joy! My dream of all teachers having access to a computer/laptop in their non-contact time was about to happen, there was much celebration with children and families.

We could only imagine the impact of all teachers having access to a computer would have on our children's documentation. The portability of a laptop would be fantastic; lifting the emac into the car would become a thing of the past!

When the project began I just took one step at a time, completed the task at hand and then continued, I never felt 'freaked out' because I knew I had fantastic support from our research associates, Professor Margaret Carr and Wendy Lee. Margaret and Wendy's encouragement, feedback and affirmations certainly had a huge impact on our teaching team's journey and also as direct support for me as the project leader.

When I first started learning more about action research cycles I thought, "Hmmmm this isn't really how we work at Roskill South." The cycles were neat steps that followed each other!
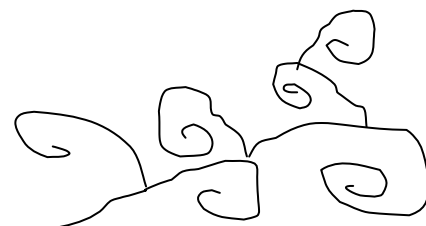
My worries were instantly put at rest when Margaret and I began to discuss what action research would look like in our centre, Whew, it was going to be a mess!

My reflective practice has deepened and I have absolutely loved having time and opportunities to discuss, ponder and wonder about children's thinking and learning, with our teaching team and research associates. I have truly embedded the framework noticing, recognising and responding into my teaching and learning practice and have a greater understanding of how this looks in practice.

At times life in our COI centre has been extremely busy, sometimes there is a feeling a juggling many balls in the air, but with a supportive team and community there was a feeling that anything was possible.

The COI project has given me countless opportunities to disseminate our innovative teaching and learning practice, nationally and internationally. My confidence in my own ability to present has increased; I have mastered the art of designing power points and have had plenty of opportunities to practise and develop my presentation skills.

My ability to articulate and discuss our action research cycles has deepen over time, as has my articulation of the principles of Te Whāriki that underpin the teaching and learning in our centre.

The COI project certainly has made a difference in the lives of children, families/ whānau, teachers, kindergarten community and the wider community.

At times it is hard to put into words what that difference is but when you see children, capable and confident, highly motivated setting their own tasks and goals, directing their own learning and communicating their ideas and feelings, taking responsibility for the group and persisting with difficulty, you just know!

It is with some sadness that I put together the final milestone. Writing the first milestone, number 12 seemed so far away. But here we are nearing the end of our COI journey and even though we officially finish on the 13th June, I get the feeling life will be the same at Roskill South, children's teaching and learning will continue to be first

and foremost in our minds and we will continue on our journey as teachers as researchers!

When you have a dream and vision anything is possible!

Appendix
Dissemination Activities

The Roskill South Research Team has taken their responsibility to share knowledge, understanding and models of practice with others in the ECE sector and with parents/whanau very seriously. It produced an extensive dissemination plan which included the creation of resources so that others in the ECE sector could put the innovative approaches developed into practice. This chapter documents the wide range of dissemination activities that Roskill South Kindergarten has carried out over the past three years. The team has used a wide range of processes to share information through print, running regular visitor programme, mentoring colleagues throughout the sector, presenting at conferences (nationally, regionally and locally), facilitating workshops throughout the country and giving talks to parents/whanau and peers.

The work of this COI has dovetailed very successfully with the development of the ICT strategy for the ECE sector. Both Karen and Wendy have been very involved in this development. Karen spoke at the launch of the ICT Strategy along with the Minister of Education.

Although the key focus of the dissemination programme has been on the NZ context there has none the less been significant interest from the international sector. The focus of the work in NZ is significantly different from other ECE ICT provision observed overseas. Much of the overseas provision is focussed on the use of software programmes for children. Our very powerful focus on pedagogical documentation for individual learners has provided a very new and extremely innovative view for international visitors to consider. We felt that the starting point of teachers engaging in 'learning story' documentation provided a background of meaning and purpose in the use of ICT than spearheaded the innovations of Roskill South Kindergarten. Visitors from Australia, England, Singapore, Wales, Malaysia and Germany were challenged by the COI research, as well as by the New Zealand curriculum (Te Whāriki), and the Early Childhood Assessment Exemplars (*Kei Tua o Te Pae*).

Interest was high when this project began in May 2003 and this continued and increased throughout the three-year period.

Three key pathways of dissemination included here are:
- Presentations/Workshops/Visitor Sessions
- Articles
- ICT in ECE Network Newsletter

The teaching team delivered over 70 presentations/workshops/visitor sessions and have published 9 articles; five 'ICT in ECE' newsletters were distributed throughout an extensive network list. This coupled with the dissemination that the Researchers have carried out over the three year period increases the presentations and workshops to around 100.

To effectively disseminate and share the research results and innovative teaching and learning practice, visitor sessions were also developed. A Visitor/Community room was

designed and construction completed in May 2004. This was funded by a capital works grant from the Ministry of Education, Lion Foundation and Pub Charities.

A visitor policy was developed in consultation with the community and Research Associates. We considered very carefully how we could provide for visitors and at the same time ensure that:

- The children's programme was not compromised or disrupted
- The ongoing research project was not jeopardized
- The overall integrity of the centre was maintained.

To support the dissemination, a visitor pack was developed which included:

- A covering letter – explaining visitor policy
- A pamphlet – with information about the kindergarten and the COI. This included information on the research question and sub questions plus our contact details
- Visitor Voice – A form for visitors to provide feedback and make suggestions that could enhance future visitor sessions
- Your details – A form to collect the visitor's details so we can continue to share information
- Ten Top products from Apple –Information about current products we are using in the centre. Apple Computers (RED - Renaissance Education Division) have provided the centre with additional computer technology along with technical support
- Innovative Vision – A copy of the article published in the *Education gazette 4.8.03*
- Using ICT to document children's learning – A copy of the article published in the *Early childhood folio 6 2002*
- Digitally enhanced learning – A copy of the article published in NZEI Rou Rou 14.3.05
- Apple ED. A kindergarten that can teach seniors a few things. – A copy *of the article published in NZ Mac. guide (dated January February 2005)*
- *Catching the waves: Innovation in early childhood education* - A copy of the first joint publication containing information on all six COI's (first round).

Note: Information included in the visitors pack also includes articles and newsletters.

A CD was later developed to provide a visual resource and to disseminate current integration of ICT in our teaching and learning practice. CDs can be purchased at a cost of $10. This resource was very popular; it assisted visitors to share their experience with their teaching teams and colleagues.

During 2005, the Ministry of Education commissioned an organisation to produce a video as part of the development of the ICT strategy for early childhood education in NZ. The resource is entitled *Kimihia ngā pae – Seek the horizons*. This video/CD/DVD gives several vignettes of ways in which ICT has been integrated into meaningful practice in early childhood settings and it has been distributed to every early childhood

setting in the country. Roskill South plays a leading role in this video/CD/DVD. It clearly highlights the innovative ways in which the technology has not only been used by teachers but more recently by children. There is no doubt that this resource has had a significant impact on broadening the views of many in respect of the innovative use of ICT. This resource was followed up with a second video/CD/DVD entitled *Navigating the Way*. The purpose was to build on the work of the earlier resource. Again Roskill South has made a significant contribution to this resource as well.

Visitor sessions at Roskill South began in August 2004. These were always popular with 12 - 17 people attending each session. Visitor sessions provided an efficient forum to disseminate information given the extensive requests we received from people who wished to visit our centre. These sessions provided an introduction to the COI project and often prompted people to request further workshops with colleagues and teams.

Below is a selection of some of the feedback and reflections from our visitors. From the quotes it is clear to see that not only has this project made a difference for the children, families/whanau and community we work with, but through our dissemination activities, has also made a difference for many learning communities throughout New Zealand and internationally.

"Thank you sharing in such a practical way your amazing shifts in practice. It is inspiring and affirming to see and share ideas. You make it feel 'more possible and manageable."

"Very inspirational to listen and to visually see the journey you have all been on. It makes me feel like rushing back and getting stuck in with fresh ideas that I taken on-board this morning. We have a long way to go, but it was affirming to realise our first steps have already been taken."

"Visiting your kindergarten has been an awesome experience. Your kindergarten is a great inspiration for us."

"Great to see the work of the kindergarten that featured in the exemplars."

"You have reinforced/ratified for me many of the things I have been telling people in my Professional Development sessions. This increases my confidence that I am being …………with what is actually possible in centres."

'I guess the great challenge is to believe in what you do and to get parents to believe in what you aspire to achieve."

"You make it feel "more possible and manageable." I will go back to my team and we will chat, chat, and chat at full speed."

"Information really valuable because it is so practical based. I took lots of notes for "growing ideas" I feel a sense of possibilities but no pressure because everyone journey must be their own."

"Your sharing has affirmed to me that I am on the right track and has highlighted the key reflective question that every practitioner should be asking, "What difference are we making for our children, whānau and community?"

"When I am back in Germany I'll show some of your pictures and I hope I'm able to transfer a little bit of your 'spirit' and enthusiasm about working with young competent children."

"I am blown away with the way you and your teachers and children have embraced ICT within your teaching and learning programme."

"It is amazing what kids at this level can achieve."

"I really like the idea of how children take photos to assist them to tell their own stories."

"For me it is very clear that here is genuine evidence of the principles and strands of Te Whāriki in action, which are supported by the integration of ICT."

"I thought your presentation showed us how technology use can grow from small beginnings. Thank you for making it seem so do-able."

"Your energy, passion and knowledge has really inspired me and lifted my spirits as it has the rest of our team who were there on Saturday. I feel like we are on the right path and have regained my clarity and vision."

"What an exciting and inspiring place to visit. It is so affirming to see NZ children's learning being documented in such a brilliant way. I can't wait to get back and implement some of the ideas we have learnt from you.

"You have made me realise just how far we have gone and given me much ideas of just where we are heading."

There is evidence that interest in Roskill South Kindergarten is not going to subside once the research project is complete. We have planned Visitor sessions until June 2006. There is already an indication that demand for these sessions will be continue to be high.

The centre has recently been involved in filming footage for a DVD resource that will illustrate the theoretical framework by which teachers notice, recognise and respond to children's learning opportunities and how ICT can support this framework. The Roskill South Kindergarten CD is also being reviewed by the COI team to update it with more current material and a DVD will be developed as support for ongoing dissemination.

The following is an outline of the presentations we have been involved in over the past three years.

Date	Place	Type of output	Presenter	Description
July 2003	Auckland	Workshop	Karen	TRCC Documentation: Making a difference in Children's Learning - Using Digital Technology- this was a 'hands on workshop' for teachers to use the technology to make their own curriculum resource.
July 2003	Auckland	Workshop	Karen	TRCC Documentation: Making a difference in Children's Learning - Sharing a Slice of our Innovation to Date – during this workshop the COI project was explored. Roskill South Kindergarten's current innovative practice was showcased and the passion and enthusiasm for documenting children's learning through ICT was shared.
July 2003	Sydney	Conference presentation	Margaret, Karen and Wendy	Young Children and Learning Technologies international conference in Sydney. A paper was presented that shared early stories from the COI Project and our proposed research for the next 3 years. The paper was titled Integrating ICT and Assessment for Learning. We illustrated the use of ICT and in particular how we have used computer technology and video cameras to include and involve families and children in our centre.
August 2003	Auckland	Presentation	Karen	Presentation at the NZEI District Branch meeting on the integration of ICT in an early childhood setting.
September	Palmerston	Conference	Karen	Presentation at the New

2003	North	presentation		Zealand Early Childhood Convention, Palmerston North. This presentation gave a brief view at some aspects of our COI and was part of a wider COI national presentation.
October 2003	Wellington	Seminar	Wendy and Karen	Karen and Wendy facilitated a Wellington Regional Free Kindergarten Association 2 day Professional Development Seminar; the focus of this seminar was 'Integrating ICT with learning stories'.
November 2003	Auckland	Seminar	Karen, Jane and Jacqui	Presentation at the OMEP Auckland Branch monthly meeting. This was a joint presentation with Anne Meade and Val Podmore (A'oga Fa'a Samoa) and the New Beginnings COI Team. This was part of an Auckland College of Education Seminar Series – 'Research with children: Possibilities for action research'.
January 2004	Corby, England	Conference presentations. Workshops and one to one mentoring of teachers.	Wendy and Karen	As part of the Educational Leadership Project Wendy and Karen were invited by the Pen Green Centre, Corby, UK to (i) work with the staff of Pen Green to build their capability in the area of ICT and (ii) present at a Conference on both assessment and the use of ICT. This provided an opportunity to share the work of the following projects: ELP, The Early Childhood Learning and Assessment Exemplar Project and the COI Project.
March 2004	Auckland	Annual General Meeting	Karen	NZEI Early Childhood Network AGM, Auckland. The teaching team attended

				the annual general meeting. Karen disseminated information on the recent visit to Pen Green.
March 2004	Wellington	Presentation	Karen	Ministry of Education Meeting. Invited to present at the Information and Communication Technology (ICT) strategy for the early childhood education sector meeting. Presentation illustrated current use of ICT in our COI centre.
April 2004	Wellington	Workshop	Wendy and Karen	Wendy and Karen were invited by the Wellington Regional Kindergarten Association to run a two-day workshop on Learning Stories, ICT and dispositions, including COI research.
May 2004	Auckland	Presentation	Karen	A'oga Fa'a Samoa - Presentation to teaching team at A'oga Fa'a Samoa. Exploring learning stories, first action research cycle, integration of ICT.
July 2004	Auckland	Keynote	Karen	TRCC Course - Making a difference in Children's Learning. Karen gave a keynote address titled 'Integrating ICT into the Early Childhood Programme'.
July 2004	Auckland	Conference presentation	Wendy	TRCC Course - Making a difference in Children's Learning. Wendy presented to the course 'A Glimpse of an ICTECE Future'.
July 2004	Auckland	Workshop	Karen	TRCC Course - Making a difference in Children's Learning. Karen facilitated a workshop titled 'Slice of Innovation'. Karen also co-facilitated a workshop 'Using digital technology to make resources'.

August 2004	Auckland	Presentation	Karen	Manukau Early Literacy Project, to inspire the project group how they could use ICT to enhance their literacy work with their children & families/whānau.
August 2004	Auckland	Visitor morning involving presentations and discussion	Karen	First Visitor Morning at Roskill South Kindergarten. A monthly visitor session was developed to accommodate the many enquires we had from individuals requesting to visit the centre. A visitor's information pack and a power-point presentation were developed to disseminate our current teaching and learning practices.
September 2004	Malta	Presentation	Wendy	Paper presented on ICT in early childhood settings.
September 2004	Auckland	Visit	Karen, Jacqui and Jane	Hon Jane Davidson the Minster for Education and Life Long Learning (Wales) visited the centre to gain an insight into our current research and to discuss the innovative ways we integrate ICT into our programme.
October 2004	Auckland	Workshop	Karen, Jacqui and Jane	Facilitated a workshop for the Education Leadership Project as part of the professional development programme. This workshop was entitled 'Integration of ICT in teaching and learning practice' (3 hour workshop.)
October 2004	Auckland	Presentation	Karen	Apple Presentation for primary school teachers, this presentation gave primary teachers an insight into current use of ICT in the ECE sector.
October 2004	Melbourne Australia	Presentation and visit to Australian centre	Karen	Karen visited Kookaburra Kindergarten in Melbourne. The Kookaburra teaching team and other local

				teachers, and tertiary providers attended a presentation about our current use of ICT and our action research to date.
October 2004	Auckland	Presentation	Karen	NZEI North Shore Branch Meeting. Karen disseminated information on the trip to Pen Green in January 2004.
October 2004	Auckland	Visitor morning involving presentations and discussion	Karen	Monthly Visitor's Morning
November 2004	Auckland	Presentation and workshop	Karen, Jane and Jacqui	Facilitated a workshop for the Education Leadership Project as part of the professional development programme. This workshop was entitled 'Integration of ICT in teaching and learning practice' (3hour workshop.)
November 2004	Auckland	Visitor morning involving presentations and discussion	Karen	A group of early childhood educators visited from Far North Early Childhood Centres. A presentation about our journey and current innovation was delivered. The group was particularly interested in the assessment work being carried out at Roskill South.
November 2004	Auckland	Visitor morning involving presentations and discussion	Karen, Jane and Jacqui	A group of Christchurch Early Childhood Educators visited our centre. Session about our current use of ICT and action research was delivered.
November 2004	Auckland	Visitor morning involving presentations and discussion	Karen, Jane and Jacqui	A group of Christchurch Early Childhood Educators visited our centre. Session about our current use of ICT and action research was delivered.
November 2004	Auckland	Presentation	Karen	Presentation to the teaching team of Small World (private early childhood

				education centre in Remuera) at their monthly team meeting.
November 2004	Wellington	Presentation	Karen, Jane and Jacqui	Early Childhood Symposium. A paper presented - E-learning.
November 2004	Auckland	Visitor morning involving presentations and discussion	Karen	A teacher group visit from a care and education centre in Whangarei. Due to the size of the group an extra visitor session scheduled to accommodate this group.
November 2004	Auckland	Visitor morning involving presentations and discussion	Karen	Monthly Visitor Morning.
December 2004	Auckland	Visitor morning involving presentations and discussion	Karen	A group visit from four education and care centres in Tauranga. Due to the size of the group an extra visitor session scheduled to accommodate this group.
February 2005	Auckland	Filming	Karen, Jane and Jacqui	The Roskill South Kindergarten community were involved in the filming of a second ICT DVD as part of the ICT strategy development. This was a further opportunity to share and disseminate our innovative teaching practice.
February 2005	Auckland	Discussion	Karen, Jane and Jacqui	Tony King the General Manger of Apple Australia, Brent Simpson, Apple Education New Zealand visited the centre. This was an opportunity to discuss the current integration of ICT in the early childhood sector and the links to teaching and learning.
March 2005	Auckland	Visitor morning involving presentations and discussion	Karen	Visitor Morning at the centre.
March 2005	Kaitaia	Workshop	Wendy	*Kei tua o te pae: Assessment for learning* – this involved sharing some of the work of

				Roskill South Kindergarten.
March 2005	Corby, England	Keynote	Wendy	Leadership and ICT, this included sharing some of the work of Roskill South Kindergarten.
March 2005	Auckland	Visitor morning involving presentations and discussion	Karen	A group of Master Students from Pen Green, Corby, England visited the centre, an extra visitor session was scheduled. This was part of a programme developed by the Educational Leadership Project.
March 2005	Auckland	Visitor morning involving presentations and discussion	Karen and Jacqui	Visitor Morning at the centre.
April 2005	Auckland	Visitor morning involving presentations and discussion	Karen	Visitors from Germany. An extra visitor session was scheduled. This was part of a study tour on Learning Stories hosted by Margaret and Wendy.
April 2005	Wellington	Presentation	Karen	ICT ECE strategy launch, Foundations for Discovery. Karen presented at this launch alongside the Minister of Education.
April 2005	Auckland	Presentation	Karen	Karen was invited by the Franklin Kindergarten Association to present to the wider teaching group in this Association on integrating ICT into our teaching and learning practice.
April 2005	Auckland	Workshop and discussion	Karen	Karen was invited by Tots Corner, (A private centre on the North Shore) to share the work of the COI Project to the teaching team.
May 2005	Auckland	Visitor morning involving presentations and discussion	Jacqui	Visitors from England, they were Master Students from Pen Green who are currently involved in a leadership masters programme. An extra visitor session was scheduled. This was part of a programme developed by the

				Educational Leadership Project.
May 2005	Auckland	Visitor morning involving presentations and discussion	Karen and Jacqui	The Auckland Kindergarten Association organised a 'Feast of Inspirational Tour'. Roskill South was one of 4 centres that teachers visited during the day.
May 2005	Auckland	Visitor morning involving presentations and discussion	Karen	Visitor morning at the centre.
June 2005	Hamilton	Workshop	Wendy	Workshop on 'Assessment for learning' and sharing some of the work of Roskill South Kindergarten.
June 2005	Auckland	Conference presentation	Karen	Karen was invited to present at ICT Cluster Conference for Pt England School. This was a Conference for primary school teachers.
June 2005	Auckland	Visitor morning involving presentations and discussion	Jacqui	An extra visitor session was scheduled for a group of educators from Singapore.
June 2005	Auckland	Visitor morning involving presentations and discussion	Karen	Visitors from England, they were Master Students from Pen Green who are currently involved in a leadership masters programme. An extra visitor session was scheduled. This was part of a programme developed by the Educational Leadership Project.
June 2005	Dunedin	Presentation	Wendy	Education Leadership Project, Dunedin Exemplar Workshop, part 1; *Kei Tua o Te Pae, Assessment for learning: Early childhood exemplars,* this included exemplars from Roskill South Kindergarten.
June 2005	Auckland	Visitor morning involving presentations and discussion	Karen	Visitor morning at the centre
July 2005	Hamilton	Workshop	Wendy	Workshop on 'making

				valued learning visible' and sharing some of the work of Roskill South Kindergarten.
July 2005	Auckland	Visitor morning involving presentations and discussion	Jacqui	Visitor morning at the centre.
July 2005	Christchurch	Presentation	Wendy	Education Leadership Project, Christchurch Exemplar Workshop, part 1; *Kei Tua o Te Pae*, Assessment for Learning: Early Childhood Exemplars, these included exemplars from Roskill South Kindergarten.
August 2005	Wellington	Presentation	Wendy	Education Leadership Project, Wellington Exemplar Workshop, part 1; *Kei Tua o Te Pae*, Assessment for Learning: Early Childhood Exemplars, these included exemplars from Roskill South Kindergarten.
August 2005	Hamilton	Workshop	Wendy	Workshop on 'building community through documented assessment' and sharing some of the work of Roskill South Kindergarten.
August 2005	Auckland	Presentation	Karen	NZEALS (New Zealand Educational Administration and Leadership Society) Presentation sharing current research and leadership at Roskill South Kindergarten.
August 2005	Waikato	Presentation	Wendy	Education Leadership Project, Waikato Exemplar Workshop, part 1; *Kei tua o te Pae, Assessment for learning: Early childhood exemplars,* these included exemplars from Roskill South Kindergarten.
August 2005	Dunedin	Presentation	Karen	Education Leadership Project, Dunedin Exemplar Workshop, part 2; *Kei tua o te Pae, Assessment for*

				learning: Early childhood exemplars, these included exemplars from Roskill South Kindergarten.
August 2005	Auckland	Visitor morning involving presentations and discussion	Jacqui	Visitor morning at the centre.
September 2005	Dublin, Ireland	Presentation	Wendy	Presentation at EECERA, Dublin, Ireland. The presentation included work from the COI project along with the ICT Strategy CD.
September 2005	Christchurch	Presentation	Karen	Education Leadership Project, Christchurch Exemplar Workshop, part 2; *Kei tua o te Pae, Assessment for learning: Early childhood exemplars.* Presentation from Kei Tua o te Pae and current teaching and learning practices from Roskill South Kindergarten recent action research cycles.
September 2005	Munich, Germany	Presentations	Margaret and Wendy	Margaret and Wendy presented to a wider German audience in Munich. These presentations included work from the Roskill South Kindergarten.
September 2005	Hamilton	Presentation and workshop	Karen, Jacqui and Jane	Waikato Kindergarten Association. One day Workshop: Integrating ICT into our teaching and learning practice.
October 2005	Whangarei	Presentation	Wendy	Education Leadership Project, Whangarei Exemplar Workshop, part 2; *Kei Tua o Te Pae, Assessment for learning: Early childhood exemplars*, these included exemplars from Roskill South Kindergarten.
October 2005	Tauranga	Workshop	Karen	Educational Leadership Project Mini conference in Tauranga. Teachers from both Rotorua and Tauranga

				attended a session on integrating ICT into ECE.
October 2005	Tauranga	Workshop	Wendy	Educational Leadership Project Mini conference in Tauranga. Teachers from both Rotorua and Tauranga attended a session Leadership and ICT.
October 2005	Hamilton	Workshop	Wendy	Workshop on valuing children's contribution to assessment, and sharing some of the work of Roskill South Kindergarten.
October 2005	Auckland	Presentation	Wendy	Education Leadership Project, Auckland Exemplar Workshop, part 2; Kei Tua o Te Pae, Assessment for learning: Early childhood exemplars, these included exemplars from Roskill South Kindergarten.
October 2005	Wellington	Presentation	Karen	Education Leadership Project, Wellington Exemplar Workshop, part 2; *Kei tua o te Pae, Assessment for learning: Early childhood exemplars*. Presentation from Kei Tua o te Pae and current teaching and learning practices from Roskill South Kindergarten recent action research cycles.
October 2005	Adelaide	Presentations	Wendy	Full day presentation on Assessment for learning and evening presentation on Integrating ICT – both presentations involved sharing work from Roskill South Kindergarten.
October 2005	Auckland	Visitor morning involving presentations and discussion	Karen	Visitor morning at the centre.
October 2005	Wellington	Workshop	Wendy and Karen	Karen and Wendy were invited to run a follow- up seminar for the Wellington Regional Kindergarten Association. This was a two-

				day workshop on Learning Stories, ICT and dispositions, including COI research.
November 2005	Hamilton	Presentation	Karen	Education Leadership Project, Hamilton Exemplar Workshop, part 2; *Kei tua o te Pae, Assessment for learning: Early childhood exemplars.* Presentation from Kei Tua o te Pae and current teaching and learning practices from Roskill South Kindergarten recent action research cycles.
November 2005	Nelson	Presentation	Wendy	Education Leadership Project, Nelson Exemplar Workshop, part 2; *Kei Tua o Te Pae, Assessment for learning: Early childhood exemplars*, these included exemplars from Roskill South Kindergarten.
November 2005	Auckland	Visitor morning involving presentations and discussion	Karen	Visitor morning at the centre.
November 2005	Auckland	Discussion	Karen, Jane and Jacqui	Education Review Office reviewed Roskill South Kindergarten. This was a great opportunity to share our teaching and learning innovation with external reviewers.
November 2005	Auckland	Presentation and discussion	Karen, Jane and Jacqui	All three teachers were invited to present to a group of teachers within the Educational Leadership Project. The presentation included the beginning of the COI journey and examples of current research cycles.
November 2005	Auckland	Visitor morning involving presentations and discussion	Karen	Presentation for Educational Leadership Project, Teachers visited the centre from Hamilton and Tauranga.

November 2005	Auckland	Visitor morning involving presentations and discussion	Karen	Another visitor's morning at the centre.
November 2005	Auckland	Presentation	Karen, Jane, Jacqui, Margaret & Wendy	COI Hui, Presentation of current teaching and learning practices from cycle 7 of action research.
December 2005	Dunedin	Presentation	Karen and Wendy	A presentation on ICT in early childhood settings at the special pre conference workshop before NZARE in Dunedin.
January	Wellington	Presentation	Margaret and Wendy	Presentations to the ECE ERO officers from throughout NZ, focuses on the ECE Exemplars and also sharing some of the work of Roskill South Kindergarten.
March 2006	Waterloo, Belgium	Presentation	Wendy	Learning Stories as a powerful Assessment Tool for Early Childhood Education.
March 2006	Waterloo, Belgium	Presentation	Wendy	Documentation: Making a difference in Children's Learning using Information Communication Technology.
March 2006	Auckland	Visitor morning involving presentations and discussion	Jacqui	Visitor morning at the centre.
March 2006	Auckland	Discussions	Karen, Jane and Jacqui	Visitor from Germany.
March 2006	Auckland	Discussions	Karen, Jane and Jacqui	Visitor from Malaysia.
March 2006	Auckland	Visitor morning involving presentations and discussion	Jacqui	Another visitor morning at the centre.
March 2006	Auckland	Discussions	Karen, Jane and Jacqui	Visitor from England.
March	Auckland	Visitor morning	Karen and	A special visitor morning at

2006		involving presentations and discussion	Jacqui	Roskill South Kindergarten – Sharing Planning Journey.
March 2006	Hamilton	Inaugural Lecture	Margaret	Presentation including some stories from Roskill South Kindergarten.
April 2006	Auckland	Visitor morning involving presentations and discussion	Jane	Visitor morning at the centre.
April 2006	Hamilton	Workshop	Wendy	Planning stories – sharing work from ELP centres including Roskill South Kindergarten.
April 2006	Auckland	Visitor morning involving presentations and discussion	Jacqui	Visitor morning at the centre.
May 2006	Hamilton	Workshop	Wendy	Assessment for Learning – sharing some of the work of Roskill South Kindergarten.
May 2006	Auckland	Visitor session involving presentations and discussion	Karen	Presentations for visitors from the Lady Gowrie Centres throughout Australia. This was part of a Learning Stories Study Tour organised by the Educational Leadership Project.
May 2006	Auckland	Presentations and workshop	Karen, Jacqui	All teachers were invited to run a full day workshop for teachers in the Auckland Kindergarten Association.
May 2006	Wales	Presentations	Wendy	A series of 10 half day presentations throughout Northern Wales focussed on learning stories and sharing some of the work of Roskill South Kindergarten.
May 2006	Auckland	Visitor session involving presentations and discussion	Karen	Visitors from both the Ministry of Education and the Universities in Malaysia.
May 2006	Tauranga	Workshop	Karen	The Big Day Out, this was a conference organised by the Educational Leadership Project. "Our Journey as a Centre of Innovation" During the last 3 years our

				centre has been involved in developing and researching the innovative use of ICT (Information and Communication Technology) in our pedagogical practice. During this workshop Karen will share a snapshot into this exciting journey; a journey that has made a difference in the lives of children, families/whānau, teachers and community. We will dip into our action research cycles and explore what is possible. Realise the potential of ICT by unlocking your dreams for the future and developing your vision
May 2006	Tauranga	Presentation	Wendy	The Big Day Out, this was a conference organised by the Educational Leadership Project. Sharing some of the journey of Learning Stories over the past 5 years. Exploring some of the changes that have taken place as the Learning story framework continues to evolve – a framework that has been adopted and adapted by many countries throughout the world!

Future Dissemination Calender

Date	Place	Type of output	Presenter	Description
June 2006	Auckland	Visitor session involving presentations and discussion	Karen and Jacqui	Visitor session at Roskill South Kindergarten.
June 2006	Auckland	Workshop	Karen and Jacqui	Workshop for Unitec students – year 1.

June 2006	Christchurch	Presentation	Karen	Presentation for Kids First Association in Christchurch
July 2006	Auckland	Presentations and workshops	Karen	TRCC Move over Peter Jackson! Karen is on the planning committee and will be both a presenter and facilitator.
July 2006	Auckland	Presentations and workshops	Wendy	TRCC Move over Peter Jackson! Wendy is the Director of the programme.
August & September 2006	Dubai Iceland England	Presentations and workshops	Karen and Wendy	Members of the Educational Leadership Project have been invited to present at a special conference at Pen Green in Corby. The work will have a special focus on ICT. Wendy and Karen are members of this team and will be joined by Jo Colbert (e fellow 2005) and Julie Killick (movie maker extraordinaire). This trip will enable other presentations to be made in Dubai (on route) and the EECERA Conference in Iceland.
September 2006	Auckland	Workshop	Jacqui	Workshop for Unitec students – year 2.
November 2006	Auckland	Workshop	Karen and Jacqui	Workshop for Unitec students.
June till November 2006	Throughout the country	Presentations	Karen and Wendy	Educational Leadership Project; Exemplar Workshops; *Kei tua o te Pae, Assessment for learning: Early childhood exemplars.* Karen and Wendy will be speaking at more than 10 Inspiration Days throughout New Zealand.

Publications and published articles include:

4.8.05 Article -Innovative Vision, *Education gazette*.
Chapter: Whāriki and assessment: A case study of teacher change Margaret Carr, Ann Hatherly, Wendy Lee, Karen Ramsey was published in *Weaving Te Whāriki Aotearoa: New Zealand's early childhood curriculum document in theory and practice*. Edited By Joce Nuttall.
Article: Leadership Story – Voices of early childhood leadership published in the *New Zealand journal of educational leadership*. Karen's contribution to the chapter was titled – Leadership: Having a Vision and Making it a Reality. Both Wendy and Karen contributed to this article.
Encounters – A Reggio Emilia dialogue with New Zealand. Volume 1 No 1. 2005. An Inspiring Visit by Wendy Larmer. Wendy Larmer attended a visitor's morning 2004 and wrote an article about the experience.
March 14, 2005 - *NZEI Rou Rou* - Article, Digitally enhanced learning. The teaching team participated in an interview and shared our journey so far and our current innovate teaching and learning practice.
A two-page article was published in the *NZ Mac guide* (dated January February 2005 but published in December 2004). The title is "Apple ED. A kindergarten that can teach seniors a few things." The paper was written by the editor, Mark Webster after a visit to the kindergarten.
Catching the waves: Innovation in early childhood education Edited by Anne Meade. The teaching and research team contributed a chapter: Roskill South Kindergarten: COI, Karen Ramsey, Jane Breen, Jacqui Sturm, Wendy Lee and Margaret Carr.
Article in *Itirearea,* Te Tari Puna Ora o Aotearoa, NZ Childcare Association. Enhancing teaching and learning through the use of ICT.
Margaret Carr's keynote address to the EECERA 14th Annual Conference in Malta in September 2004 included some of the work in the Roskill South Kindergarten Centre of Innovation project. An adaptation of this address is to be published the *European early childhood education research journal*.
Carr, M. (in press). *The leading edge of learning: recognising children's self-making narratives.*
Margaret Carr's inaugural address as Professor of Education in April 2006 included some of the work in the Roskill South Kindergarten Centre of Innovation project. It will be published in the *Waikato journal of education.*
Carr, M. (in preparation). *Being Curious: An educational agenda for the 21st century.*

Roskill South Kindergarten's COI research project has also enabled dissemination to take place across the education sector including the early childhood sector, primary sector, professional development providers, tertiary institutions, journalists and parents/whanau.This team has clearly demonstrated the five faces of leadership as outlined in Kagan and Bowman (1997)[27].

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[27] Kagan, S. & Bowman, B. (Eds.) (1997). *Leadership in early care and education.*

Pedagogical Leadership
- *Increasing knowledge of learning and teaching*
- *Reading, promoting and doing research*
- *Developing and promoting innovative teaching practices*

Administrative Leadership
- *Managing day-to-day running*
- *Environment, people and outcomes*
- *Organisation and attention to detail*

Advocacy Leadership
- *Working with people and organisations beyond immediate sector/environments*
- *Seizing strategic opportunities move an issue forward*
- *Big picture - aim to change policy*

Community Leadership
- *Being visible in the community*
- *Collaborating with community power brokers*
- *Working to developing community partnerships*
- *Spreading a positive message about early childhood*

Conceptual Leadership
- *Visionary leadership – ideas*
- *Focus on the long term, broad thinking*

Educational Leadership is leadership that is concerned with increasing our knowledge of curriculum, and teaching and learning (pedagogy). There is no doubt that Roskill South Kindergarten has developed into a significant 'leader centre' and is well known throughout the New Zealand community for their expertise and innovation in ICT. They have demonstrated this commitment by:
- Staying abreast of the latest research in practice
- Researching their own practice
- Experimenting with new approaches
- Sharing our insights with others. This dissemination record is clear evidence.