



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga

Information and Communication Technology (ICT)

Te Hangarau Pārongo me te
Whakawhitiwhiti

20

Kei Tua o te Pae
Assessment for Learning:
Early Childhood Exemplars

New Zealand Government

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Kei Tua o te Pae
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**Information and Communication
 Technology (ICT)**

**Te Hangarau Pārongo me te
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Introduction

He kupu whakataki

The exemplars in this book should be considered in conjunction with the discussion in Book 16. Information and communication technology (ICT) can be defined as “anything which allows us to get information, to communicate with each other or to have an effect on the environment using electronic or digital equipment”.¹ The Government’s ICT framework for early childhood education states:

Acknowledging the central position of the ECE curriculum *Te Whāriki* in ECE policy and practice, the vision for ICT use in early childhood education has been directly drawn from *Te Whāriki*’s aspiration statement:

The thoughtful and meaningful use of ICT in early childhood education services can support children “to grow up as 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”.

What this means for ICT use in early childhood education is that learners in ECE services should have the opportunity to experience:

- enhanced learning opportunities through the meaningful use of ICT
- which will enable them to enhance their relationships, and
- broaden their horizons by exploring the wider world.²

The New Zealand Council for Educational Research compiled a comprehensive literature review of the role and potential of ICT in early childhood education for the Ministry of Education in 2004.³ This review includes the comment that:

Most of the literature about ICT in early childhood education strongly supports the view that technology on its own should never drive the process of ICT development in the sector ... Rather, all planning for the introduction and use of ICT by children and adults in early childhood education should be grounded in a clear understanding of the purposes, practices, and social context of early childhood education.⁴

The use of ICT will be integrated with the purposes and practices associated with implementing *Te Whāriki*.

The ICT exemplars in this book are viewed through one or more of the three lenses outlined in Book 16:

- a lens that focuses on assessment practices, referring to the definition of assessment as “noticing, recognising, and responding”, from Book 1 of *Kei Tua o te Pae*;
- a *Te Whāriki* lens;
- a lens that focuses on the symbol systems and technologies described as “information and communication technology”.



A lens focused on assessment practices

He āta titiro ki ngā mahi aromatawai

The principles of *Te Whāriki* apply to both assessment and curriculum, and the assessment of children's participation in ICT keeps this in mind. Assessments provide useful information for teachers, families, and children, enabling and informing pedagogy that will strengthen all dimensions of participation in ICT. Assessments take place in the same contexts of meaningful activities and community practices that have provided the focus for curriculum. Families are included in the assessment and in the evaluation of ICT learning opportunities. Family "voices" are sought, and "funds of knowledge" from home and community are acknowledged and included. ICT is about communication and, therefore, about relationships. Assessment is sited in responsive and reciprocal relationships.

ICT assists teachers with the documentation of children's learning and facilitates the provision of more interesting, authentic, and immediate data for assessments.

An area of great interest ... to us has been how ICT is assisting teachers with documentation ... Digital video and still cameras used in conjunction with computers have been pivotal in providing easier access to documentation and the curriculum, especially for children and their families. This applies particularly when a Learning Story contains a series of photos illustrating "work in progress" as opposed to a one-off "tourist shot" of the finished product.⁵

In many of the early childhood settings contributing to this book, a particularly powerful way of building children's identities as learners has been to make those documented narrative assessments that have been developed with digital technology available to the children themselves. In many cases, the children's portfolios have become books that they can "read". In some cases, the children have taken their own digital photographs as part of the assessment record, and they have assisted with downloading them onto the computer. They have dictated the commentary, watching while an adult uses the keyboard to write their words.



A lens based on *Te Whāriki* – He tirohanga mai i *Te Whāriki*

[A child's identity as a competent and confident learner 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 ... 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 ...⁶

Learning outcomes in *Te Whāriki* that are relevant to the symbol systems and technologies of ICT are woven throughout the strands. The Exploration/Mana Aotūroa strand includes, under Goal 3, the learning outcomes that children develop:

- confidence in using a variety of strategies for exploring and making sense of the world;
- the ability to identify and use information from a range of sources;
- a perception of themselves as “explorers” – competent, confident learners who ask questions and make discoveries;
- the ability to represent their discoveries, using creative and expressive media and the technology associated with them.⁷

The Communication/Mana Reo strand includes, under Goal 3, the learning outcomes that children develop:

- an understanding that symbols can be “read” by others and that thoughts, experiences, and ideas can be represented through words, pictures, print, numbers, sounds, shapes, models, and photographs;
- experience with some of the technology and resources for mathematics, reading, and writing.⁸

The *Te Whāriki* perspective is that children will participate in the symbol systems and technologies of ICT for personal, social, and cultural purposes: for becoming confident and competent in culturally valued enterprises, expressing emotion, making connections across place and time, contributing their own abilities and viewpoints to the community, communicating with others (including appreciating the ways in which the available cultures communicate and represent), and making sense of their worlds.

At the same time, the possible pathways for learning that derive from the four principles in *Te Whāriki* (see Books 10 and 16) can provide a guide for identifying dimensions of strength as children become more interested in and involved with ICT. Learning associated with ICT practices becomes:

- more strongly integrated as recognised patterns, regular events, and social practices over time. In the exemplar “The photographer at work”, Nissa observes the everyday practice of teachers documenting interesting episodes of children’s learning. She takes the initiative to pick up the camera and document an episode when the children are making pancakes. The teacher comments, “I wanted to take photographs but I couldn’t because I was just too busy.”
- distributed or stretched across a widening network of helpful people and enabling resources. In the exemplar “Vinny learns to email”, Vinny’s competence with ICT becomes distributed across a wider range of resources. He takes photographs, uses WordArt™ computer software, takes the initiative to suggest email, and is keen to use the keyboard to enter his own “text”.
- connected to a greater diversity of purposes, places, and social communities. In the exemplar “I wonder what this is?”, Leo has previously discovered that websites are available for finding out information. On this occasion, the teacher suggests that they email the curator at the local museum. Leo takes a photograph of the skeleton they want information about, and then they compose an email. The curator replies. The teacher strengthens this understanding that experts are often elsewhere by commenting that she does not know the answer and that Leo’s guess has been more accurate than her own (an aspect of mindfulness as well).
- more mindful (as children begin to take responsibility and make up their own minds). In the exemplar “Tori’s PowerPoint® story”, Tori develops a story about herself and her friend Nina, helps the teacher to scan into the story the pictures she has drawn, types the story (copying the teacher’s print), records her voice for each page, and with the teacher’s assistance, puts it all together as a PowerPoint® presentation. Tori later assists another teacher to make a PowerPoint® presentation.

A lens focused on the symbol systems and technologies for making meaning: ICT

He tirohanga ki ngā tohu whakahaere me ngā momo hangarau hei whakamārama atu: ICT

A repertoire of practices

The following are some aspects of participating in ICT that might be noticed, recognised, responded to, recorded, and revisited. Not all of these aspects are represented in the exemplars, but teachers may be able to locate them in their own settings and write their own exemplars.

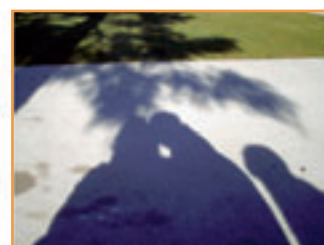
In her book *Pedagogy and Learning with ICT*, Bridget Somekh comments:

The sub-title of this book is “Researching the Art of Innovation” because my interest is in finding ways of assisting the creative, collaborative process of change that combines imagining, experimenting with, and evaluating new practices ... [T]he core insight that there is the potential of expanding human capability through integrating ICT into action and co-creating new ICT-mediated practices has remained central to my thinking.⁹

When episodes are documented and revisited, children will be able to recognise their own competence and the way it has developed over time along the four dimensions of strength described in the previous section. Furthermore, children may have participated in using ICT for the documentation. An indicative repertoire of practices is set out here, using the four practices outlined in Book 16 as a framework.¹⁰ These four practices also intersect and interconnect.

Observing and listening in to ICT practices

Observing and listening in to ICT practices includes watching adults and other children using ICT for a range of purposes. In the exemplar “Jason, the boy with the camera”, Jason has observed the teachers and children taking digital photographs and recognises that this is what children at his kindergarten do. This observation and his later interest in taking photographs himself contributes to his settling-in process, and to his family’s involvement.



Playing with ICT tools and practices

The first forays into using ICT tools are frequently through play. Children, for instance, play at being a computer user, using the keyboard to “write” text or moving the mouse, as Tiari does in the exemplar “Tiari wants to draw” (see Book 17). In the exemplar “Exploring with iSight®”, the children play with a new ICT tool, trying it out to find out what it can do. At the same time, they are learning how to use a new tool for inquiry that will be practical for other explorations.



Using ICT for a purpose

Using ICT for a purpose includes:

- faxing and emailing family and others beyond the early childhood setting to communicate, strengthen reciprocal and responsive relationships, and seek information from experts;
- making copies of work and text so that it can be taken home and shared with family and others;
- making copies of drawings in order to tell a story. ICT that includes visual images and sometimes dictated text and/or music is a valuable tool for storytelling;
- using the computer for social networking and increasing and strengthening interactions with families via email, Skype™, and blogs;
- taking photographs to construct text that the photographer, who cannot read and write in the conventional sense, can read and revisit;
- photographing work and events to document learning in portfolios and displays;
- using the Internet for inquiry, to nurture curiosity and research;
- videoing work in progress, as well as events, so that children can revisit the process and share and discuss it with family and the wider community;
- using a digital microscope to explore the world more closely;
- using web-based programmes for collaboration and discussion with teachers and families;
- assisting transitions and a sense of belonging and well-being by recording early settling experiences and moments of children building relationships;
- providing daily visual records for families and caregivers to use as catalysts for communication and relationships;
- using Skype™ or web cameras to enhance and support transitions between home and centre or between early childhood settings;
- including video from home, and artefacts that include the home language, for children to revisit and make connections with.

All the exemplars in this book illustrate at least one of these aspects of purposeful participation in ICT. This purposeful use of ICT is modelled by the teachers in the exemplar “Infant daily programme sheets”, where teachers in an infant centre use the digital camera and the computer to create annotated illustrations of the learning activities undertaken during the day. The purpose of these is to provide opportunities for families and whānau to be included in the day’s happenings and for children to revisit the activities at the end of the day with their families.

Critically questioning or redesigning

Critically questioning or redesigning includes critiquing the options for representing, communicating, and making meaning that are available through ICT. It includes choosing the ICT tool for the task at hand (or choosing not to use an ICT tool and suggesting alternatives).

In the exemplar “Charles publishes his stories”, the teacher models alternative ways of representing ideas, using ICT. Charles, originally not interested in drawing and writing, is enthusiastic about the new design opportunities provided by combining drawing, story-telling, and ICT.



Exploring with iSight®

Today Tuveina asked me if he could put the iSight® camera into the mouse house. I got it out of the bag and helped him plug it into the computer. Keanu was at the other computer with the other iSight® camera ready to see into the mouse house. Tuveina put the iSight® camera into the house to see what the mice were doing. He said, “Keanu, can you see what the mice are doing? They are sleeping.”

Keanu asked over the iSight® camera if Tuveina could wake the mouse up and see if it wanted to go on the wheel.

Tuveina laid the iSight® camera down and gently picked up a mouse and put it onto the wheel.

Keanu was laughing from the other computer watching via the iSight® cameras. The mouse was non-compliant and refused to do any exercise, but Tuveina persevered and kept putting it back on the wheel until it did run around. Tuveina quickly moved the iSight® camera in for a better shot, watching on his screen to see what it looked like.

They talked about the sizes of the mice’s feet and how they run around the wheel so fast.



Review

Tuveina showed an understanding that the iSight® cameras could be used to explore his environment and knew that he could use them anywhere he wanted in the kindergarten setting.

Keanu and Tuveina are both very computer-savvy children and are confident in using the technology of the iSight® cameras as a tool for communication about thoughts, questions, directions, and ideas. This was excellent exploration of the mouse house.

Where to next?

I will ask Keanu and Tuveina what else they think we could do with the iSight® camera.

What’s happening here?

Tuveina asks a teacher if he can put a web camera into the mouse house. His friend Keanu joins him, and together they watch the mice through the web cameras.

What aspects of noticing, recognising, and responding to learning in ICT does this assessment exemplify?

ICT hardware is available to be used by the children in this setting. The teacher immediately responds to Tuveina’s request, recognising that this is a learning opportunity for him.

What does this assessment tell us about learning in ICT (using a *Te Whāriki* lens)?

Tuveina has found another strategy for exploring and making sense of his world. He asks questions and explains ideas to others with the added strategy of using the web camera. He has the confidence to choose the technological tools and to experiment with their use. He also engages a peer in his exploratory project.

How does this assessment exemplify developing competence in ICT?

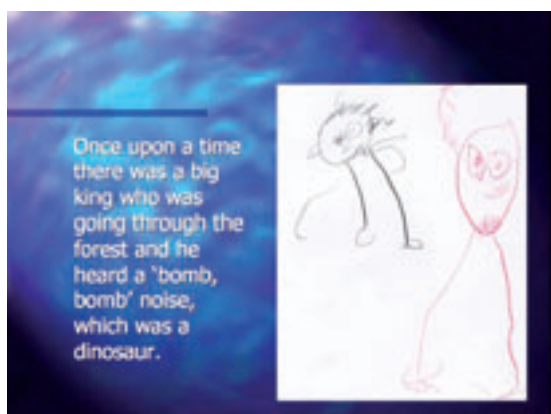
This exemplar illustrates the children’s increasing competence in the use of ICT. The teacher mentions that “both [are] very computer-savvy children”. Prior to this experience, they had had opportunities to observe teachers using the web cameras, and they now use these tools for their chosen purpose.

Charles publishes his stories

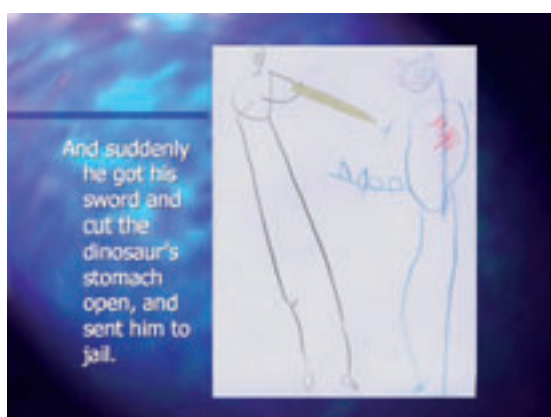


The Dinosaur Story

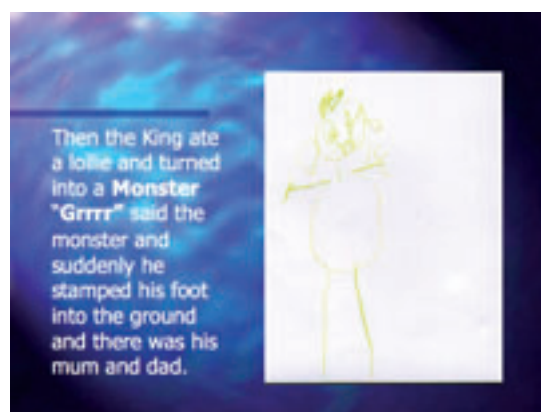
by Charles Dougherty



Once upon a time there was a big king who was going through the forest and he heard a "bomb, bomb" noise, which was a dinosaur.



And suddenly he got his sword and cut the dinosaur's stomach open, and sent him to jail.



Then the king ate a lolly and turned into a monster. "Grrrr" said the monster and suddenly he stamped his foot into the ground and there was his mum and dad.



So the monster ate a green lolly and turned back into a king and his mum and dad turned back into the king and queen.



And they all lived happily ever after in the castle.

The End.

What's happening here?

Charles is a boy who likes to explore the outdoors. His mother has lamented his lack of interest in drawing and writing and has sought support from his teacher in the Correspondence School to develop this interest. Many possibilities have been discussed. Jean has suggested that Nicky (Charles's mother) "encourage Charles to draw in books he makes and see if he can recite a story about his pictures, or he may just want to represent his pictures in a single word, (or none at all)". Later, much to the delight of his mother, Charles draws several pictures and then proceeds to tell her the story about these pictures. His story is made into a book and sent off to his teacher at the Correspondence School, with wonderful transformative consequences. Jean turns this story into a PowerPoint® presentation and returns it to Charles. His response is enthusiastic. One of his real interests is using the computer; and here is his story transformed into a special program. Charles continues to write many stories, adding his own drawings, and these are published at his home.

What aspects of noticing, recognising, and responding to learning in ICT does this assessment exemplify?

Initially the teacher responds to the parent's requests for help in encouraging her child's participation in drawing and writing. After his initial success with drawing and storytelling activities, she recognises that here is an opportunity to integrate Charles's interest in computers with his drawings and oral literacy.

What does this assessment tell us about learning in ICT (using a *Te Whāriki* lens)?

The transformation of Charles's work encourages him to explore and deepen his involvement in computers while also encouraging him to continue his drawing and storytelling. Most importantly, ICT provides a medium for Charles to develop and enhance his drawing and writing skills. ICT adds to his communication repertoire.

How does this assessment exemplify developing competence in ICT?

This exemplar shows how the use of a computer and PowerPoint® software can stimulate the learning of children who are interested in ICT tools. Software can be easy to use and enables children to construct their own stories.

Jason, the boy with the camera

15 June

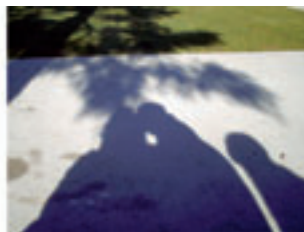
Yesterday, Kogi and I decided that this week we would concentrate on taking photos. So this morning, I took the camera outside with me, hoping to get some great shots.

It was very quiet outside, and Jason, you were sitting by yourself - so I took a picture of you. We both noticed when I showed you the photo that there was a shadow there!



You were so curious about the shadow, and about the process of taking photos that I thought you might want to have a turn for yourself.

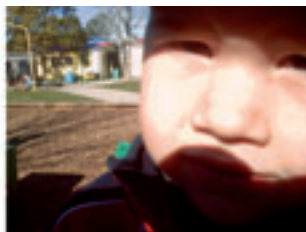
You noticed that there were other shadows on the ground, and you focused on taking pictures of all the different sorts and sizes of shadows. First, you took pictures of your shadow and mine.



Then you took lots of photos of all other sorts of shadows.



When you had taken lots of pictures of shadows, you decided you would like to take photos of other people - just like I had taken one of you.



The other children were so interested in what you were doing, that they started to get excited about doing it too!

What was Jason learning here?

Jason had not been at morning kindergarten long, and had been finding it all very overwhelming. As part of the process of settling into a new situation, he had been looking for people who would be likely friends. Being behind the camera, he was not only able to take photos of what interested him, but also to approach people that he would have not otherwise approached.

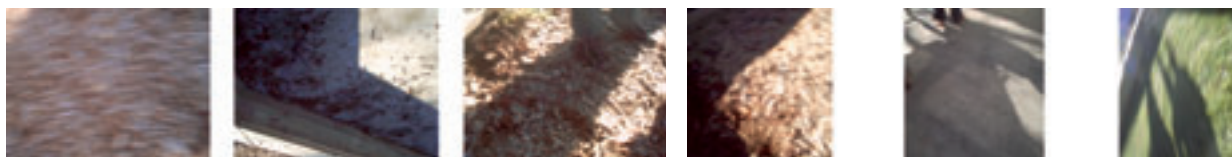
Where can we take the learning from here?

With a new term, Jason is not the only new child at morning kindergarten anymore. I wonder if he would like to take photos of the newer kids? The interest from the other children on this day is also something we could probably pursue so the whole group benefits. We haven't really pursued this technology with the children yet, and with the arrival of a new video camera, camera, TV, and video player, the scope for extending Jason's interest in photography is limitless. He could maybe play a mentor role for the other children in this endeavour – show them how to use the new technology?

Links to the Curriculum:

Belonging, Goal 2; Contribution, Goal 2; Communication, Goal 4.

Jason will develop the confidence to express his ideas and creativity through the new technology and to assist others with this technology. Jason will perceive himself as being capable of acquiring a new skill and become familiar with the technology, which will become a tool for him to understand his abilities as a competent learner.



What's happening here?

A teacher, recognising a child's interest in the photos she has taken, encourages him to take some photos himself. Other children become interested in the boy's photos, and this shared interest helps him to approach and get to know the other children at his centre.

What aspects of noticing, recognising, and responding to learning in ICT does this assessment exemplify?

Initially the teacher encourages Jason to work with a camera to help to develop his sense of belonging and to discover his interests. She recognises Jason's interest and involvement in his camera work as well as the value of giving Jason the camera and allowing him to explore its possibilities. The teachers recognise that the "scope for extending Jason's interest in photography is limitless". Jason's photos of shadows are creative and unusual. The assessment includes the consideration that Jason could have a mentoring role with other children in the use of technology at the centre. The teachers recognise that this role could play a positive part in helping Jason to see himself as a capable and competent person. Jason can now read this story about his learning and share it with his family.

What does this assessment tell us about learning in ICT (using a *Te Whāriki* lens)?

In this exemplar, Jason is given a camera to photograph what he is interested in (initially shadows), and he then begins to photograph other children. Jason is a new child at morning kindergarten, and teachers see this activity as an opportunity to increase his sense of belonging. Teachers comment that "Being behind the camera, he was not only able to take photos of what interested him, but also to approach people that he would have not otherwise approached."

How does this assessment exemplify developing competence in ICT?

In this exemplar, a child's use of a digital camera is combined with computer-based software to allow teachers to enhance his learning experiences. A technical skill (digital photography) is transformed into a learning experience through the creation of a visual learning story.

Infant daily programme sheets

3 May

Today the children experienced a sensory activity using paint. They first created pictures using the stamps and then, later on, they used the roller brushes on large pieces of paper. Some of the children wanted to experience the paint on their skin so they painted their hands, and those with bare feet walked through the paint making foot prints.



Tuesday 10 August

We have had a busy time inside today. We have had lots of sensory activities for the children. The play dough was out. Later on Becca and Judy cut out fish for the children to glue onto. They painted yellow dye onto the fish and sprinkled glitter on them.

Lincoln pushes the rolling pin into his lump of play dough.



After morning tea, Daniel and Tirhys painted with the brushes onto black paper. They each had a little taste too!!

Wednesday 11 August



Amethyst enjoyed lying on her tummy, feeling the different textures of the blanket.

Emma, Lincoln and Daniel used the PVA glue to stick pieces of material to their paper. They carefully dipped their brushes into the pots and spread the glue on the paper. They learnt about co-operation as they shared the resources.



After lunch Julene, Georgia, Lincoln and Angel had great fun shaking the musical shakers.

Monday 16 August

Judy showed Bodhi a couple of times how to put the cars into the tunnel and watch them come out the other side and down the hill. Bodhi worked this out very quickly and was soon putting the cars down there himself, actively exploring and using both his fine and his gross motor skills.



Tirhys took a liking to the song on the stereo and danced away to the music, freely expressing himself with lots of fancy moves. Go Tirhys!!



What's happening here?

The teachers in the infant centre have begun to use the digital camera and the computer to create annotated daily records of learning activities. This is an alternative to writing learning stories on the whiteboard because the parents did not seem to be reading such information. Photos of children involved in different areas of play, or photos just capturing what teachers call that "special moment", are taken throughout the day. All teachers are involved in taking the photos and writing the captions.

What aspects of noticing, recognising, and responding to learning in ICT does this assessment exemplify?

The teachers developed the idea of the daily programme sheets to inform families about the daily happenings within their centre and so strengthen the relationships with family and whānau.

What does this assessment tell us about learning in ICT (using a *Te Whāriki* lens)?

This assessment recognises that learning is embedded in responsive and reciprocal relationships. The documentation contributes to building good relationships between teachers and parents as they share experiences that have occurred throughout the day. The teachers have observed the development of stronger relationships with the wider whānau since implementing the daily programme sheets. This form of documentation has also promoted more teacher discussion, assessment, and reflection on "where to next?" within the teaching programme. It has increased the visibility of the learning in the centre, and teachers feel that it has increased their accountability for what they do and why they do it.

How does this assessment exemplify developing competence in ICT?

These annotated daily activity sheets provide a visual insight into the daily happenings in the centre, making the programme more accessible to parents. Teachers tell stories of the increased interaction between parents and also between teachers after viewing the documentation. This documentation has fostered a stronger sense of belonging within the centre.

The daily activity sheets are bound and laminated to form a book that children can revisit. Teachers talk about the enthusiasm that has been generated by the books when parents or teachers revisit them with the children.

Tori's PowerPoint® story

Throughout the past few months we have been experimenting with PowerPoint® as a tool for documenting children's learning. PowerPoint® allows the children to plan and construct their own interactive computer program. Previously we had been working on group documentation and Tori had been a keen helper. I wondered if she would be interested in making her own presentation, a prospect that she found very exciting.

Tori and I discussed a story topic and Tori decided that it would be about her good friend, Nina. Next we needed to construct the story. We talked about it needing a beginning, a middle and an end. Tori understood this concept well and began her story by saying, "Once there was a girl called Nina." The story went on to tell the readers all the things that Nina, and her friend Tori, liked to do together. At the end Tori decided that "Snip, snap, snover, the story is over" would be a good way to conclude.

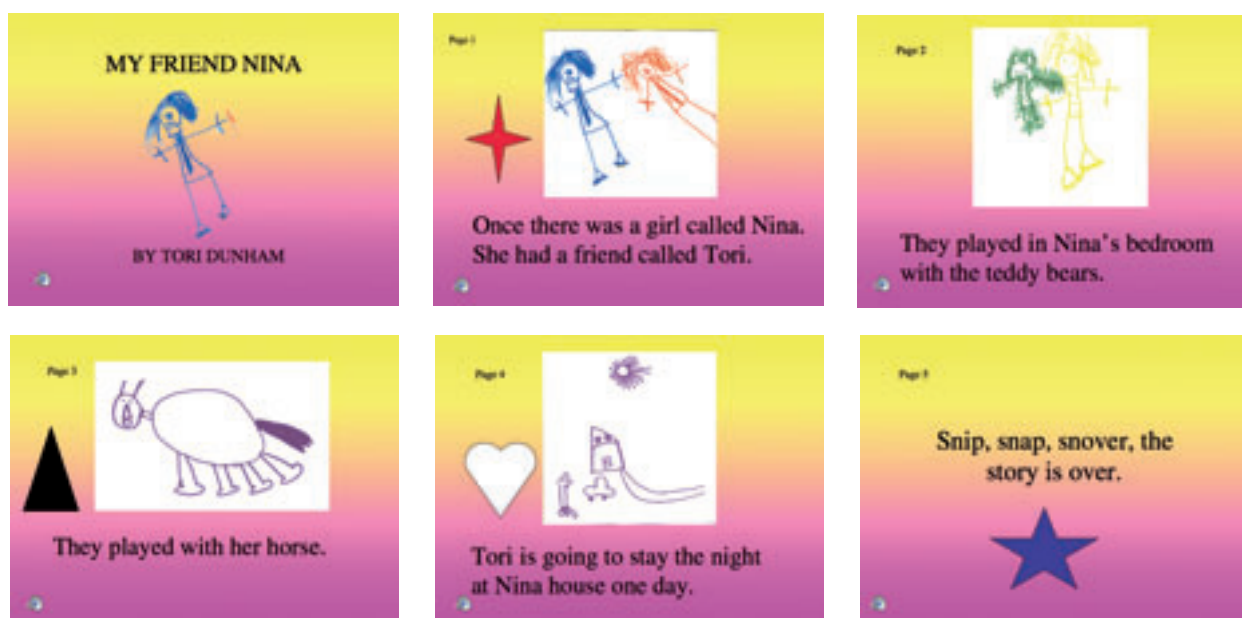
Next we needed to illustrate the story by segmenting it into pages and working out what pictures the story would need. Then Tori set to work drawing her pictures. This took quite some time but Tori was concentrating hard and working diligently.

The next day we set to work scanning the pictures onto the computer and inserting them into PowerPoint®. Tori is really great at scanning. She helped me to put the pictures into the scanner and, using the mouse, clicked on all the buttons in order to start the scan and save it into her folder. Once the pictures had been loaded onto the slides, Tori set about designing her presentation. She decided the background would have two colours, pink on the bottom, and yellow at the top.

Now we needed to type all the words of the story onto the pages with the pictures. Tori did all the typing herself by copying the words I had written clearly onto paper for her to see. I had no idea that Tori was so competent at typing and recognising the letters of the alphabet. She was able to do most of this work all by herself, although I was always close by if she needed some help. Tori also learnt how to make a capital letter and how to use the space bar to create a gap between words.

All this typing took quite some time and we spread out the load over two days. At last it was finished and we were able to do the most exciting part, recording Tori's voice onto each page. Tori was so good at talking clearly and in a loud voice so that the computer could hear her. We were able to listen to each recording and Tori decided if it was just right or if it needed another go.

Because of her past experience with PowerPoint® Tori knew that the computer could make things move with special sounds and actions. Tori was keen to animate her pictures, words and some shapes as they appeared on the page.



Next we needed to organise the story so that everything would appear on the page in the correct sequence. For example, Tori didn't want the words to show before the picture because then the readers would not see the picture for long enough. This is where I needed to help a little bit because some of the organising was a little bit complicated.

At last the story was completed and after four days of hard work on Tori's part, she was ready to reveal her work to family and friends. Everyone was so impressed with Tori's wonderful work. This is what some of the other teachers thought about the story:

"Tori, it was really nice to hear how you enjoy spending time with your friend, Nina. Nina will be proud of all the amazing work you have accomplished." – Heidi

"I like how creative you were with using the animations, Tori – particularly the sounds." – Jenelle

What learning happened here?

Where do I begin, Tori? You learnt so much that it's hard to highlight all the skills you have gained. Firstly, you have done a lot of work on literacy. Creating a story with structure in terms of a beginning, a middle and an end and using the computer as a tool for writing the words are important literacy skills. Within a story there are many other aspects that we need to think of. Sentence structure and correct grammar are important if a story is to make sense. You also learnt why and how to use a capital letter and the space bar.



Then we need to think about technology. Using the scanner, the mouse and the keyboard, recording sound, and animating were all new to you. Your ability to follow instructions, listen to advice, and be patient in terms of waiting for me to be available meant we were able to successfully work together on this task.

I know that since working on this story you have helped Jenelle to make a PowerPoint® presentation of the alphabet using sign language. Your contribution to this was very special because your voice sings the song for others to hear.

Where to from here?

Obviously you have a passion and love for literacy, art and technology, Tori.

With your transition to school getting closer, we will continue to scaffold your learning in these areas. We will be sure to share your work with your new teacher so that she or he knows how clever you are. Because you have some great leadership skills as well, sharing this knowledge will highlight to your teacher that you may be able to help others with literacy and technology. Perhaps you can even teach your new teacher how exciting PowerPoint® can be.

I have been thinking that we could make a PowerPoint® about transition to school. Maybe this will help other children to feel confident and familiar about school when they are about to move on. When we go on school visits with you, we could take some photos and work on a new presentation together. What do you think?

Melissa

What's happening here?

Melissa, the teacher, is encouraging Tori to make a story using PowerPoint® and, when Tori shows excitement about the project, she sets up the situation to support and guide her in the venture.

What aspects of noticing, recognising, and responding to learning in ICT does this assessment exemplify?

In this centre, teachers recognise opportunities to use ICT across the curriculum. The teachers recognise that Tori needs the time and space to work in a focused way on her project. They respond by setting up the situation in a way that supports her learning.

What does this assessment tell us about learning in ICT (using a *Te Whāriki* lens)?

The teachers have a strong view about children being capable and competent learners, and they don't limit the possibilities they present to them. Learning dispositions are a strong focus in this centre, and Tori is encouraged to persist with this project, to take responsibility for what she has achieved, and to share her new learning with those around her.

The opportunity to use ICT, in particular PowerPoint® – software that is commonly available – has enabled Tori to experience the usefulness of these ICT tools and has empowered her to achieve an outcome she can share with the wider community of learners.

How does this assessment exemplify developing competence in ICT?

In this exemplar, Tori learns new ICT skills and goes on to teach others, displaying a continuing enthusiasm for computer-based presentations. Her increasing technical skills advance her drawing, literacy, presentation, and communication skills. She is involved at every stage of the development of this presentation. The ICT skills she learned include:

- scanning her pictures and saving them to a folder;
- designing the presentation and deciding on the background colours;
- typing the story into the computer (by copying the letters from the dictated story);
- recording an audio version of the story;
- animating the story.

The photographer at work

Child: Nissa

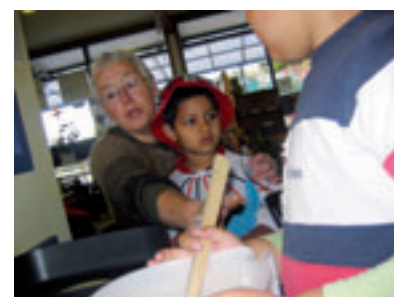
Teacher: Robyn

1 June

Rowena was very keen to make pancakes for morning tea this morning. We checked the cupboard for the ingredients and found that we had no eggs and no milk and so Nissa came to the shop with us to buy what we needed. Once back we started cooking. Delia, Melata and Tanya joined in making piles of pancakes. Our heads were down as we worked hard being very careful not to touch the hot pan when we flipped the pancakes and poured the mixture in. It was fun and the delicious smell of cooking pancakes was drifting through the kindergarten. I wanted to take photographs but I couldn't because I was just too busy. I looked up and there was Nissa, standing with the camera switched on and ready to use. She began to take photographs and I was so grateful, thinking to myself that Jane had asked her to document our cooking. But Jane looked surprised and said that she hadn't asked Nissa to get the camera. Astonished, I realised that Nissa had gone and got the camera on her own and had begun to take photos. She zoomed the lens in and out, clicking the button, making sure that she photographed not just the people but the process as well. She took the photos from many different angles. When I looked at the photos [of her] later I realised that she even stood like a photographer! I didn't have to think about photos, I just trusted her to document the process and she did. Thanks, Nissa. It was so much fun having a photographer work with us this morning!



Nissa, you are an amazing photographer.



What stunning photographs, Nissa!

Nissa's photographs of the process from many innovative and creative angles!



What learning is taking place?

Nissa watched us cooking and then took the opportunity to rush off to get the camera and start photographing. She has only recently learnt how to use the camera and she certainly knows how to. When I recovered from my astonishment, I realised that not only does Nissa photograph with confidence and skill, she understands that when something exciting is happening, then it is time to document. Watching her document the people making pancakes made me realise that Nissa understands why we use the camera and that it is to document what people do, as well as the process of doing things.

Nissa sees herself as a capable, competent learner taking responsibility for her learning and contributing to the learning of others in the group. She recognised the missing component - a photographer - and she stepped into the role. This story shows very clearly how children plan for themselves when they connect ideas and then make their own decisions about putting a plan in action.

I have a feeling that what comes next is up to Nissa. She will no doubt use the camera a lot more and we will make sure she knows that that is OK. We can work together with her, downloading her photos onto the computer and making slideshows or printing them.

What's happening here?

This is an excerpt from Nissa's portfolio that illustrates her increasing interest in ICT.

What aspects of noticing, recognising, and responding to learning in ICT does this assessment exemplify?

Children are encouraged to take responsibility in this early childhood setting. The centre also supports children in their efforts to explore ICT as part of their learning journey. The teachers give Nissa time to tackle the challenge of using new equipment and then document her success for her to revisit with her family. In this story, it is Nissa who notices the children cooking and recognises this as a worthwhile experience to document. She then responds by getting the camera and taking responsibility for recording the activity. Having two accessible digital cameras allows the experience to be recorded by a child while a teacher photographs her initiative.

What does this assessment tell us about learning in ICT (using a *Te Whāriki* lens)?

The teachers recognise that "Nissa sees herself as a capable, competent learner taking responsibility for her learning and contributing to the learning of others in the group."

Nissa's increasing competence impacts on her learning and on her disposition to participate in the wider activities of the centre. This exemplar also shows Nissa's ability to widen the range of challenges that she sets herself.

How does this assessment exemplify developing competence in ICT?

The exemplar illustrates Nissa's confidence using a digital camera, taking responsibility for her own learning, and documenting the learning of others. The documentation is completed using several publishing technologies combined with a range of ICT tools. It is used to enhance and expand the children's learning experiences and to strengthen Nissa's confidence in her photography.

I wonder what this is?



Last week one of the children brought in this skeleton that they had found at the beach. I showed it to Leo and asked him if he had any ideas about what sort of skeleton it might be. "Maybe a flying fish?" was Leo's initial thought, but after a closer inspection we both decided that it could not be a fish as it had what looked like nostril holes at the top of its beak. I thought it might be a penguin and the only way to find this out was to have a look in some of our books. We soon

discovered it was not a penguin skeleton because penguins don't have pointy bones on top of their heads! I asked Leo where else we might find out what the skeleton might be. "Maybe the internet?" suggested Leo. Good thinking, Leo, so off we went to search for images of skeletons, but every image we found did not look like the one we had. What could it be? We were both puzzled. Then I came up with a suggestion. Perhaps we could email someone and ask them what it might be. Leo thought this was a good idea. I explained that we would need to send a photo of the skeleton, so Leo took the photo and then we worked together to compose an email. We are going to send it to someone at the museum and hopefully they will be able to tell us what the skeleton is.



Short-term review/What next?

I thought Leo might be interested in finding out what this skeleton is. I was pleased to see that he remembered the internet as a source of information, even though today we could not find what we were looking for. With perseverance we will find out. The email still has not been sent as we worked together on the wrong computer, but I will transfer it and get it sent. I am very interested to find out what it is. Are you, Leo? Do you have any books at home that might be of help to us? If you do, would you be able to bring them in and we could have a look at them.

Jo, 27 July

This is the email that Leo and I sent to the museum. Leo took the photograph of the skull and vertebrae and then we emailed it.

Leo and I are trying to discover what this skeleton is from. It came from the beach and we think it might be a bird of some sort. Leo thinks maybe a flying fish. The part of the skeleton we have is 10 cm long, so not very big.

Any help you could give would be most appreciated.

Many thanks

Jo and Leo

The curator at the museum emailed us this reply.

It's the head, and some vertebrae, of a snapper. You can see the circular areas where the eyes would be and behind that the tiny brain case. The lower part of the head (jaws etc.) is missing.

Wow! What a surprise, neither of us knew this was a snapper! Leo, you were the closest, thinking this was a flying fish. It wasn't a bird, which is what I thought it was.

Leo and I had a look at a picture of a snapper and we both thought it still didn't really look like a snapper head!

Jo, 29 July

What's happening here?

One of the children in the centre brings along a skeleton they found on the beach. In this exemplar, Leo and Jo are puzzling over what animal the skeleton is part of. They then investigate the skeleton using the Internet, email, and books.

What aspects of noticing, recognising, and responding to learning in ICT does this assessment exemplify?

In this centre, teachers recognise opportunities to learn through the use of ICT. Teachers in this place are alert to children's interests and ready to provide challenges to extend their learning.

What does this assessment tell us about learning in ICT (using a Te Whāriki lens)?

This is a good example of exploration. In this situation, the teacher recognises that the skeleton provokes children's curiosity. She encourages Leo to think about the skeleton's origins and to consider what animal it might have been. When the search on the Internet does not reveal any useful information, Jo suggests they email an expert. This provides more opportunities to learn when Leo photographs the skeleton (to provide a photo for the expert) and helps to compose the email to the curator at the museum. Leo makes connections with his previous experiences of searching the Internet and continues to use this new tool in his learning.

How does this assessment exemplify developing competence in ICT?

Leo uses a digital camera to photograph the skeleton, and he discovers that the Internet is a means of communication that gives him access to information.

Reels of fun

Date: 13 May

Teacher: Karla

What a fun afternoon we had today, Zach. Who would have thought that so much fun and laughter could have come from those yellow plastic reels?

It was lovely outside on the grass and you were enjoying a nice quiet cuddle when I introduced you to the reels. Together we stacked them up on top of each other, higher and higher until they wobbled. But before they could fall over on their own accord, you reached out and toppled them over yourself – then collapsed into a fit of giggles!

Encouraged by how much you enjoyed this the first time, we stacked the reels time and time again, and every time you knocked them over and giggled contagiously. What a lovely sound that was too – so much so that it brought us an audience. Lorraine came to see what all of the laughter was about and so did a number of the other children.



Flynn decided that it looked like so much fun that he would join in too. You didn't seem to mind this at all. In fact I think you quite enjoyed having someone else to share the occasion with!!

What's happening here?

Firstly, Zach seems to be really enjoying himself, which is great to see. But he is also learning a thing or two at the same time. Zach is discovering all about the art of balance and where to place the yellow reels in order for the stack to stay standing. He is also learning about gravity, as when the reels do topple they fall back onto the grass. But most importantly, he is learning the art of playing here at the centre with and alongside other children. Although Zach and I initiated the play, he was more than happy for other children to join in the fun.

What next?

It seems that Zach quite enjoys the concept of building things up to watch them fall, so perhaps we could introduce him to the building blocks. We could also look at using other objects, such as old yoghurt containers or plastic teacups, to stack outside too. We can also encourage other children to come and play with us to further Zach's experience of playing alongside other children.



What's happening here?

It is early days for Zach. The centre is a new environment, and he is just starting to build a sense of belonging in this new place. The teachers have captured images of Zach's play with all the bright yellow reels on video and by creating very small clips on their digital still camera. The video clips are used to give immediate feedback to Zach's mother when she arrives to pick him up, so she can have a window into his day at childcare.

What aspects of noticing, recognising, and responding to learning in ICT does this assessment exemplify?

This exemplar shows that the teachers are totally committed to building strong, reciprocal relationships between themselves and the families. The video and photographs provide evidence of a responsive relationship between Zach and the teacher, and the documentation contributes to the relationship with his family.

What does this assessment tell us about learning in ICT (using a *Te Whāriki* lens)?

This assessment indicates a shared understanding that learning is embedded in responsive and reciprocal relationships. The provision of documentation contributes to building good relationships between the teacher and the parent. The use of video clips ensures that Zach's parents can see exactly how he has been getting on at childcare, and they provide visual reassurance for the family when they see their child happily interacting with children and teachers.

The learning story illustrates and makes visible the learning that is going on for Zach. The teacher focuses on the value of the relationships he is establishing in this place.

How does this assessment exemplify developing competence in ICT?

In this story, the teachers have used a digital camera to take photos of Zach's learning and have written it up into a learning story for his portfolio. This can then be shared with Zach on a daily basis, and his family can take his portfolio home whenever they wish to. Zach may be observing this process and beginning to recognise that ICT is "something we do" in this setting.

Vinny learns to email

Today Vinny asked me if he could take a photo of the Thomas the Tank Engine book⁴¹. I asked Vinny why he wanted to take a photo and he told me that he really liked to take photos. We know this because of all of the photos that Vinny takes. Together we downloaded the photos and then Vinny chose the rainbow as the font colour for his name and he wrote it, and then he chose the colour pink to go around his photos.

Then it was Vinny's turn to type.

Bvmxzas vinnys

Vinny is learning to use technology. He has a purpose in mind when he asks to use the camera and to download and print his photos.

Early literacy is here too. Vinny says he is learning to write "Vinny". He is certainly learning his way around the keyboard!

I asked Vinny what his what next? might be. He thought for a bit and he asked if he can email to his cousin Tilly. Could we have the email address so that Vinny can continue on his ICT journey.



Jo and Vinny, 20 July

Dad's Email:

Hi Jo & Vinny!

It's great to get an email from you both. It sounds like you are having fun on the computer, Vinny. I liked your story with the photos of Thomas. Your name looks great with the rainbow through it – I think they are just the sorts of colours you love.

Vinny – I think you should tell Jo the story about how you climbed the ladder and saved the little girl today. I think it was very heroic.

Here is Tilly's e-mail address: tilly@xxxxx

Love from Stephen

> -----Original Message-----

> To: stephen@xxxxxxx

> Subject: Vinny's story

>

>

> Hi Stephen,

> Vinny asked if we could send you his latest story!

> We look forward to your reply.

> Jo and Vinny

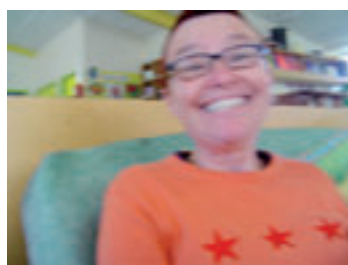
Emailing Tilly

Today Vinny and I were looking through his portfolio and he asked me to read out the story about when he took the photos of the **Thomas the Tank Engine** book. The "what next?" for this story was to email Tilly and it reminded Vinny and myself that we had not done this. We had emailed Vinny's Dad and that email was on the next page of Vinny's portfolio, and he had sent us Tilly's email address. I asked Vinny if he wanted to email Tilly today, and he thought this was a great idea. I asked Vinny what he wanted to say to Tilly and he told me that he wanted to take some photos and send them to her. So Vinny took some photos (quite a few of my foot!) then we downloaded them and Vinny selected which photos he wanted to send to Tilly. Vinny and I worked together to insert the photos into text boxes and then we wrote what each photo was about. We did all this on the lap top and then went into the office and transferred it to the iMac®, inserted the document into an email and then sent the email to Tilly.

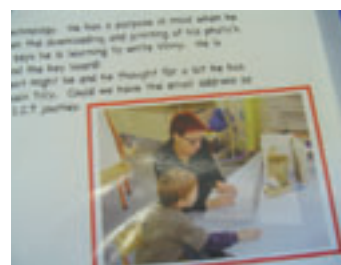


To Tilly

Love from Vinny



This is a photo of Jo,
taken by Vinny.



I took this photo of my portfolio.
It's about sending an email to Tilly.



I took this photo about a
puzzle and a bit of Jo's foot.



I took this one for my portfolio.
It's about my bike ride.

Short-term review

I am very impressed with how quickly Vinny has learnt the terminology and skills necessary to use the computer. He asked me if we could download the photos and make a text box, and then when the email was taking a long time to send, I showed Vinny the little arrows going around and around and explained that that meant the email was still sending. A little while later Vinny said to me, "Look Jo, it is still sending."

What next?

Well, I guess we just have to wait, don't we Vinny, until we get a reply from Tilly. I wonder what she will think of your email with the photos?

I think we should have a talk about what you would like to do next as far as ICT goes. You are very good at taking photos now and I wonder how we can use your great photography skills? We have also been thinking about emailing school. Does Eddie have an email address for his classroom?

Jo, 21 October

Date Monday, October 25, 6:54pm

Dear Vinny,

I hope you had a good weekend. It was my dad's birthday on Monday. He had an apple cake. I think he was turning 46. We gave him seven presents. They were: a pillow, a pillow case, a book, a coffee cup, a bag, a shirt and some clothes. Max and I made him two cards and we hoped he would like them and he did. Ah well – a big day of school tomorrow.

Bye bye from Tilly



What's happening here?

In the initial assessment, Vinny is engaged in taking photographs and then, with the support of Jo (the teacher), downloading these pictures and formatting the frames and words in different ways. Vinny then types his own text in the document. The next day, they email Vinny's dad, who sends a very encouraging email back. Later, while revisiting his portfolio, Vinny remembers that he wants to send Tilly some photographs, so he takes several photos that he then emails to Tilly. Tilly responds by sending a photo of herself.

What aspects of noticing, recognising, and responding to learning in ICT does this assessment exemplify?

The teacher in this centre is alert to Vinny's interests in photography and in working on the computer. She supports and encourages him to work in these areas by being responsive to his suggestions and by asking him what he might like to do next. Cameras, as well as a laptop computer, are available to the children.

What does this assessment tell us about learning in ICT (using a *Te Whāriki* lens)?

These stories illustrate Vinny's developing competence as he broadens his use of technology, initially with the camera, then with the computer as a publishing tool, and finally using the computer as a communication tool. The stories also illustrate the ongoing reciprocity between the teacher, the child, and his family. The documentation itself provides an important tool for revisiting discussions held in the past and motivating Vinny to make progress in his work.

How does this assessment exemplify developing competence in ICT?

This exemplar describes a child and his developing competence in the area of ICT. The stages of Vinny's developing competence include:

- taking photographs of a favourite book and later taking a series of photographs to include in his emails;
- using computer software, including WordArt™, and formatting photographs;
- using the keyboard to enter text;
- communicating with his father and his cousin through email.

Reflective questions

He pātai hei whakaaro iho

Which assessments from our setting make ICT learning visible to teachers, children, families, and whānau?

What opportunities do we have for involving ICT expertise from the wider community in the documentation of our children's learning? Do we access this expertise?

In what way are our assessments grounded in a clear understanding of the purposes, practices, and social context of our early childhood setting and its community? In what way, therefore, can ICT assessments indicate that we are on the pathway towards bicultural practice?

How do teachers include in their assessments the ICT practices children are experiencing outside the centre?

Are there opportunities for children to use ICT to contribute to documenting their own learning?

Endnotes

Kōrero tāpiri

- 1 Iram Siraj-Blatchford and John Siraj-Blatchford (2003). *More than Computers: Information and Communication Technology in the Early Years*. London: The British Association for Early Childhood Education, p. 4.
- 2 Ministry of Education (2005). *Supporting Learning in Early Childhood Education through Information and Communication Technologies: A Framework for Development*. Wellington: Ministry of Education, p. 16. The passage quoted is from Ministry of Education (1996). *Te Whāriki: He Whāriki Mātauranga mō ngā Mokopuna o Aotearoa/ Early Childhood Curriculum*. Wellington: Learning Media, p. 9.
- 3 Ministry of Education (2004). *The Role and Potential of ICT in Early Childhood Education: A Review of New Zealand and International Literature*. Wellington: New Zealand Council for Educational Research.
- 4 *ibid.*, p. 3.
- 5 Wendy Lee, Ann Hatherly, and Karen Ramsey (2002). "Using ICT to Document Children's Learning". *Early Childhood Folio*, no. 6. Wellington: New Zealand Council for Educational Research, p. 10.
- 6 Karen Ramsey, Jane Breen, Jacqui Sturm, Wendy Lee, and Margaret Carr (2006). *Roskill South Kindergarten Centre of Innovation 2003–2006. Final Research Report*. Wellington: Ministry of Education, pp. 48–49. This report describes and analyses how three teachers in a New Zealand kindergarten integrated ICT into their teaching and learning in innovative and thoughtful ways. See also Karen Ramsey, Jane Breen, Jacqui Sturm, Wendy Lee, and Margaret Carr (2007). "Weaving ICTs into *Te Whāriki* at Roskill South Kindergarten". In *Cresting the Waves: Innovation in Early Childhood Education*, ed. Anne Meade. Wellington: New Zealand Council for Educational Research, chapter 4, pp. 29–36.
- 7 Ministry of Education (1996), *op. cit.*, p. 88.
- 8 *ibid.*, p. 78.
- 9 Bridget Somekh (2007). *Pedagogy and Learning with ICT: Researching the Art of Innovation*. London: Routledge, pp. 2 and 3. Somekh adds, "In *researching* this art of innovation with a special focus on the introduction of ICT into education I have found socio-cultural theories particularly powerful, both as a framework for analysis and interpretation, and in designing prototypes of innovative pedagogies and new ways of learning ... Initially my understanding of the potential mediating role of ICT 'tools' was rather narrow and mechanistic, but later, as I developed a much broader definition of 'tools' that incorporated everything from physical artefacts to the conceptual understandings and practices of our culture, these theories of mediated activity became increasingly illuminating" (p. 2).

- 10 Alan Luke and Peter Freebody first developed these ideas in 1999 as “A Map of Possible Practices: Further Notes on the Four Resources Model” in *Practically Primary*, vol. 4 no. 2, pp. 5–8. See also Peter Freebody and Allan Luke (2003). “Literacy as Engaging with New Forms of Life: The ‘Four Roles’ Model”. In *The Literacy Lexicon*, ed. Geoff Bull and Michele Anstey. Frenchs Forest, NSW: Prentice Hall, 2nd ed., chapter 4, pp. 52–65.
- 11 Rev. W. Awdry (2004). *Favourite Thomas the Tank Engine Stories*. London: Dean.