

EXECUTIVE SUMMARY

A framework to guide the effective use and investment of Information and communication Technology (ICT) in Early Childhood Education (ECE) services was initiated by the Ministry of Education and launched in April 2005. The framework, entitled *Foundations for Discovery* (Ministry of Education, 2005), was developed against a backdrop of other Government initiatives. These included the ECE Strategic Plan – *Pathways to the future: Ngā Huarahi Arataki* (Ministry of Education, 2002) – which had three overarching goals for the sector – to increase participation, improve quality, and promote collaborative relationships.

The *Foundations for Discovery* framework recommended five strategic focus areas for action, one of which was to develop teacher professional learning and capability in ICT. This was in recognition of ECE educators having a critical role in the appropriate and effective use of ICT in ECE services through careful planning, modelling and creation of meaningful learning experiences. As a result the Ministry of Education initiated and funded a three-year programme for teacher professional development. This has been managed and facilitated by CORE Education.

This report provides an overview of the impact of the Early Childhood Education Information and Communication Technologies Professional Learning (ECE ICT PL) programme, 2006–2009.

The purposes of the report are twofold:

- I. To synthesise the main findings that emerged from fifty-six action research projects undertaken by teachers during the programme. In these action research projects, teachers collaboratively investigated a range of ‘puzzles of practice’ with respect to integrating new technologies into their service programmes. The focus of these enquiries and reports was on identifying the learning outcomes involved in a variety of ICT-based learning activities.
- II. To summarise the results of three surveys of participating services and teachers (baseline, mid-point and end-of-project). The survey results provide a quantitative overview of the main ‘national trends’ in the impact of the ECE ICT PL programme as a whole on participating teachers and services.

The action research projects

Fifty-six written action research reports were received from a total of 60 services. These describe in detail the particular aspects of eLearning that each investigated, the evidence base gathered, and their main findings or conclusions. Brief synopses of all services’ action research projects are attached to this report (Appendix 2).

The action research projects varied in quality as pieces of formal research, but were universally rigorous in their reflective qualities and useful as evidence-based accounts of the services’ eLearning practices. Perhaps most importantly, they provide strong accounts of how a range of ICTs might be used to improve learning outcomes for children, communities and teachers in ECE settings.

The most prominent and pervasive finding of the action research studies was that eLearning or ICT-based activities have significant benefit potential with respect to:

- enhancing children’s learning
- helping services connect with their communities

- improving the quality of teaching
- realising that potential lies less in *which* technologies are used and more in *how* they are used.

New technologies provide significant opportunities and affordances for learning and social connection in ECE settings, including that which would be impractical or impossible otherwise, but they do not guarantee these outcomes independent of the pedagogical and social contexts within which they are used.

A second high-level finding is that such learning and social connection outcomes are likely to be greater when children use the technologies themselves, or when they have some measure of control over which, how, and why, various ICTs are used.

In investigating their own eLearning activities, the teachers were encouraged to focus their data gathering and analysis on identifying the types of *learning* or other *outcomes* that might be observed when teachers and children used ICTs in various ways and for differing purposes.

The investigations can be grouped as:

- studies of learning outcomes for children
- studies of connection outcomes with respect to parents, whānau and the wider community
- studies of professional learning outcomes for teachers themselves.

In particular, the studies of children's learning identified positive outcomes with respect to:

- thinking skills and disposition to enquiry
- cultural awareness
- literacy learning and communication skills
- agency and sense of self as learners
- a range of affective domain outcomes such as confidence, motivation and sense of belonging.

The studies of community connection identified positive outcomes with respect to parent and whānau understanding of their children's learning, improved relationships and increased connection between services and their community, and children's transitions both within and between services and schools.

The studies of teachers' own professional learning found that, although challenging and initially uncomfortable, using new technologies (notably videos of teaching sessions) as a stimulus for their own reflection and learning could:

- enhance their own disposition to be professionally self-critical
- persuade them to give more 'autonomy' to children in their learning activities
- lead to their changing/improving specific pedagogical practices or habits.

The surveys

Teachers and services were surveyed about their eLearning practices at three points in the programme: early in 2007 (baseline survey), June 2008 (mid-point survey), and October 2009 (end-of-project survey).

The comparison of baseline and end-of-project surveys, in particular, provides a record of changes in teachers' and services' eLearning practices over time, and also allows identification of some general trends across all teachers and services involved in the programme.

The main findings from the surveys:

- Services significantly increased their stocks of computers and other ICTs over the period of the programme, and most of this increase involved more ICTs being located in play areas. Among the hardware that increased the most were laptops, digital still and video cameras, webcams, digital microscopes. Mobile devices such as cell phones and iPods seem little used.
- Almost all services have broadband Internet access and the great majority of services (91%) provide Internet access via wireless networking throughout the service.
- Both ICT-use for learning and ICT-capability of staff and children increased significantly over the period of the project. Prominent among the usage trends was:
 - a significantly greater use of ICTs by children themselves
 - greater use of ICTs for learning and learning-related activity (as opposed, for example to use for administration)
 - and increased use of ICTs to communicate with parents and whānau.
- Throughout the programme the most frequent use of ICTs for learning by children was for the documentation of their learning, especially through the use of digital cameras and the co-writing of learning stories. However, use of ICTs for creative activity (story writing, making pictures etc) increased significantly over the period of the programme as well.
- Teachers identified a wide range of gains from the programme, the most prominent of these being:
 - deeper pedagogical knowledge
 - substantial increases in their own confidence and competence
 - increased use of ICTs for a variety of curriculum purposes
 - a much greater focus on the children themselves using ICTs for learning
 - more critically reflective practice on their part as teachers.