



Te Tari Puna Ora o Aotearoa  
NZ Childcare Association

# Early Childhood Teachers' Work in Education and Care Centres: Profiles, patterns and purposes

## Te mahi a ngā kaiako kōhungahunga i ngā pokapū mātauranga, manaaki hoki: Ngā kōtaha, ngā tauira me ngā pūtake

Anne Meade, Lesley Robinson, Sue Smorti, Margaret Stuart, Joanna Williamson  
with Janis Carroll-Lind, Patricia Meagher-Lundberg and Sissie Te Whau





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**NZ Childcare Association**

Wellington 2012

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## Foreword

Tēnā koutou katoa

As the owner of an education and care centre and National President of Te Tari Puna Ora o Aotearoa/New Zealand Childcare Association (NZCA) I am delighted to write this foreword for our second Flagship research report.

NZCA is a national bicultural organisation that promotes high quality early childhood education (ECE) through initial teacher education, professional development, advocacy and membership services. In the past two years we have expanded our focus to become knowledge generators through ECE research aimed at understanding and improving practice. We have termed these projects our ‘flagship research’ and used them as an opportunity to partner our academic staff with professionals working in the sector to explore questions of interest to our members. We hope that each of our ‘flagships’ will show us how to better support all those ECE practitioners who share our vision of high quality ECE for every child.

This publication reports our second Flagship research project, *Early childhood teachers’ work in education and care centres: Profiles, patterns and purposes*. It explores the work of teachers in different contexts and asks whether teachers’ qualifications make a difference to children’s experiences. This project was born following the Government’s 2010 decision to abolish the 100% funding rate for services with a fully qualified teaching workforce. This move met with consternation within our membership which has long held the vision of ‘100% qualified’. Across the sector concern was expressed about the impact this policy change would have on the quality of early childhood education in New Zealand. Hence, the decision was made to undertake an NZCA flagship research project focused on the initial and subsequent effects of this new policy.

This study tells us what we already suspected — that qualified teachers matter. From my experiences in Aotearoa and overseas, I’ve observed how qualified teachers are able to draw on their pedagogical knowledge to interact in meaningful ways which bring about positive gains for children. This study identified different patterns of teaching and learning in ‘100% qualified’ services and was able to link these patterns to children’s cognitive development. I invite you to read the findings of this study for yourselves and to consider their implications for raising the quality of early childhood education in Aotearoa New Zealand.



Judy Kaa

National President

Te Tari Puna Ora o Aotearoa/NZ Childcare Association





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# Executive summary

## Introduction

For a few years, New Zealand was in the unique situation internationally of having some education and care centres with 100% qualified teachers subsidised by government, at a level that made this staffing profile financially feasible. When the government announced that funding to these centres would be reduced, NZCA decided it was important to study them, in comparison with centres with fewer qualified teachers.

The Teachers' Work study was therefore designed to answer four main questions focused on early childhood teachers' work, and the effects of their work on children's learning and family participation.

1. What quality teaching practices feature (or are absent) in education and care centres with 100% qualified teachers and in centres with 50–79% qualified teachers?
2. What features in these two categories of centres promote (or constrain) some key aspects of children's learning and development?
3. What features in these two categories of centres have positive (or negative) effects on family participation?
4. How do the profiles, patterns and purposes of teachers' work differ in these two categories of centres?

## Research design

A mixed-method design for data gathering was used, based on two collective case studies (Wellington, 2000): a collective 'case' of five centres with 100% of their regulated staff being qualified teachers, and a collective 'case' of five centres employing 50 to 79% qualified teachers. The centres studied were randomly selected from Ministry of Education early childhood services databases (stratified by location, levels of qualified teachers, and the enrolment of both toddlers and young children).

In addition, two on-line surveys of a large number of education and care centres were undertaken, in order to learn more about the wider context of early childhood teachers' work in 2011 and the deployment of qualified teachers and unqualified staff across different roles in centres. A total of 516 centres responded to these surveys (a 35% return rate), representing 21% of education and centres throughout Aotearoa New Zealand.

A review of the literature revealed that qualified teachers differ from unqualified educators in terms of their ability to relate practice to theory; quality of practice generally; effectiveness of interactions with children and relationships with families; specialised pedagogical knowledge; and, within New Zealand, ability to implement the bicultural aspects of *Te Whāriki*. Moreover, settings with more qualified teachers have higher quality ratings.

## On-line surveys

Two on-line surveys were sent out by email: one to NZCA member centres, and one to all other education and care centres on the Ministry of Education's database of education and care centres.

Centres with high percentages of qualified teachers had complex issues to deal with as a consequence of the reductions of funding from 1 February 2011, with about two-thirds of them reporting changes to practice and finances that impacted on teachers' work. Managers of centres with fewer qualified teachers had no reduction in funding, but had other complex issues to deal with, in terms of how they deploy qualified staff alongside unqualified staff.

## Data analysis

The main unit of analysis was two collective cases: five centres with 100% qualified teachers *collectively*, and five centres with 50–79% qualified teachers *collectively*. Ten centres are too few to apply statistical tests. The collective case studies instead provided a rich picture of teachers' work, in settings with contrasting team profiles, in order to allow analytic generalisation (Yin, 1994).

The second unit of analysis was types of adult–child interactions (such as 'conversations' and 'sustained shared thinking'). As we gathered over 1000 observations of the target children and their interactions with the staff in each of the 10 centres, the patterns in children's experiences can be seen as reasonably typical.

## Case study framework

The Teachers' Work case study framework included:

- NZCER ECE Quality Rating Scale;
- Observations of 10 sample children (called target children in this report) in each centre interacting with teaching staff;
- Assessments of learning of the target children aged 4 years;
- Observations of teachers at work;
- Centre documentation (e.g., philosophy of practice statements); and
- Interviews with manager/staff at each centre, and with parents of target children.

## Findings

The NZCER ECE Quality Rating Scale was used on two days in each case study centre. All the tables show a visible skew toward more positive ratings for centres with 100% qualified teachers. As well, the means of clusters of variables for centres with 100% qualified teachers were always higher than the means for centres with fewer qualified teachers. However, scores on individual variables did not always fit this pattern; for example, in the centres with 100% qualified teachers, commitment to *te reo me ona tikanga Māori* was less evident than in centres with 50–79% qualified teachers. Across all 10 centres, none rated positively in relation to accepting and representing the diverse cultures of the children.

## Parent–staff communication

The target children's portfolios, plus interview data from parents and managers/teachers, revealed that parent/whānau participation was most evident in the 100% qualified centres. Moreover, the

regular (sometimes daily) email communication has transformed the participation of parents in their child's early education. All centres valued *kanohi ki te kanohi* (face-to-face) talk; however, in the 100% qualified teachers' centres, more of the communication was intentionally about learning, rather than informal.

Centres with 100% qualified teachers explained their philosophy of practice and their planning system, and the theories underpinning these, in greater detail than staff in centres with fewer qualified teachers. The shared kaupapa Māori goals and values in the bicultural centre in the 50–79% category ensured that whānau supported and participated with kaiako to strengthen children's learning *te reo me ona tikanga Māori* in the centre. Otherwise, parent participation was less evident in centres with fewer qualified teachers.

## Teachers' work with children

In centres that do not have all qualified teachers, those headteachers and teachers who are qualified and registered have to do more to guide and support unqualified staff.

Teachers' working days are affected by their centre's opening hours, and the patterns set for children's days. The centres with 100% qualified teachers were more flexible with routine care times and have separate staffing arrangements for children aged over and under 2 years. Three of these centres operated a primary caregiver or key teacher system for the under 2s, but only one centre with fewer qualified teachers did; the other six centres operated a system where changing rosters meant most staff worked with the under 2s.

## Observations of adult–child interactions

Qualified teachers had considerably higher rates of short interactions with target children, particularly in centres with 100% qualified teachers. Centres with fewer qualified teachers had lower rates of short interactions overall, with little difference between qualified teachers and their unqualified peers.

Qualified teachers initiated a higher rate of conversations (or two-way non-verbal communication) with children than unqualified practitioners did. These teachers also had the highest rate of conversations initiated by children, except with toddlers in centres with 50–79% qualified teachers (probably because more unqualified staff in those centres worked with this younger age group).

One unexpected finding was the amount of time children spent in an unstructured way or waiting or watching (over 20 percent of their time in both categories of centre). However, at these times there were more conversations between adults and children. The patterns in other kinds of activity varied. In centres with 100% qualified teachers, children interacted most often with teaching staff whilst engaged in creative arts experiences. In centres in the 50–79% category, children spent more time interacting with adults whilst eating meals and snacks.

## Child outcomes

There was little to distinguish the two categories of centres in the outcomes measures chosen for this study: social competence and behaviour, and repertoires in using symbol systems.

Looking at the social-behavioural profiles of the 4-year-olds, the centres with 100% qualified teachers had a slight edge in relation to independence/concentration (also known as self-control in other studies, which found it to be important for long-term outcomes). Centres with 50–79% qualified teachers had slightly higher scores for children's cooperation and peer sociability,

outcomes aspired to by those centres. In terms of the target children's roles in participating with symbol systems, age (being close to turning 5) mattered more than staff qualification profiles.

Another outcome studied was child participation in *te ao Māori*. There were more non-responses and misunderstandings about *tikanga Māori* evident amongst teachers in 100% centres than in 50–79% centres, which had more Māori staff in leadership roles.

Episodes of sustained shared thinking, whilst infrequent, were much more likely to be facilitated by qualified teachers and to take place in centres with 100% qualified teachers. They occurred across the curriculum, including during routines for toddlers, and 'free' play and group times for 4-year-olds, reflecting the broad definition of curriculum in *Te Whāriki*.

Although some examples of sustained shared thinking and adult mediation of concept development focused on more traditional curriculum knowledge and skills, many were about relationships, children's identity, well-being and contribution to the group. We also found these engagements often happened when children were helping or watching a practitioner on their own. As well, qualified teachers more often engaged in sustained shared thinking with children during planned experiences connected to the creative arts, whereas unqualified educators had such engagement during meals. Unqualified educators had far fewer episodes of sustained shared thinking, and for a shorter time, than qualified teachers. Adult mediation of concept development showed the same pattern.

## Conclusions

The profile of qualifications amongst teaching staff in the case study centres affected not only the teaching and learning of children specifically, but also the staff's capacity to engage with parents. In most centres, it affected the quality of early childhood education. Centres with 100% qualified teachers had far more positive scores on the majority of the research measures than centres with 50–79% qualified teachers. The most obvious differences were in the ratings of quality using the NZCER ECE Quality Rating Scale, where most centres with 100% qualified teachers were rated above the mid-point on the large majority of variables, whereas the majority of centres with fewer qualified staff were rated on the mid-point or below for most variables. The adult–child interaction ratings were corroborated when triangulated with adult–child observational data.

As well as the patterns in quantitative data about differing quality, when the analytic lens zoomed in a different sort of pattern was detected. There was a thread through the findings about pedagogy associated with children's thinking, that is, a cognitive learning thread. Compared with children in the centres with 50–79% qualified teachers, children in the 100% centres benefit from more teachers asking more open-ended questions and posing challenges in ways that lead children to use more complex thinking. Four centres provided the conditions where children spent more than 10% of their time in complex play; three of these had 100% qualified teachers. Children in the 100% centres had:

- more interactions with qualified teachers;
- more conversations with these teachers;
- more episodes of sustained shared thinking;
- more teacher mediation of their concept development; and
- slightly higher scores on indicators to do with independence and concentration.

For the under 2s, the centres with 100% qualified teachers provided higher quality care and education than the 50–70% centres.

The research literature tells us these effects are significant; for example, sustained shared thinking has significant predictive value for children's later success (Siraj-Blatchford, 2010). Staff mediating children's concept development also increases children's consciousness of their material and social worlds.

Many of the practice effects relate to greater pedagogical expertise in the 100% teams, in linking theory to practice in planning, teaching, assessment and evaluation/self-review, and in communicating with parents and whānau. But logistics are also part of the explanation, that is, the numbers and ratios of qualified teachers to unqualified staff. In the centres with 50–79% qualified teachers, the smaller number of qualified teachers must mentor and guide their unqualified colleagues, so the qualified teachers have less time with children.

This project has shed light on the beneficial effects of the internationally innovative policy to have a target of 100% of required (regulated) staff holding a teaching qualification in education and care centres. The policy change on 1 February 2011 to reduce funding to centres with 100% qualified teachers has implications for practice which affect child outcomes.







## CHAPTER 1

# Why study early childhood teachers' work?

### Introduction

Until early 2011, New Zealand was unique in having an official funding category for teaching teams with 100% qualified teachers working in childcare centres (officially called education and care centres by the Ministry of Education). It achieved this unique situation after the government developed a 10-year strategy, in 2002, to increase the proportion of qualified teachers in education and care settings to levels matching those in kindergartens. The strategy was implemented in stages across the ensuing decade.

Research on the effects qualified teachers in early childhood education have on quality and on outcomes had influenced the Minister of Education at that time. Minister Mallard was convinced that all children in centre-based childcare, away from their parents and whānau, deserved to be taught by qualified teachers before they started school. Examples of the literature that showed the benefits of qualified teachers at the time of the Cabinet decision include Smith (1996); Wylie, Thompson and Kerslake Hendricks (1996); Burchinal, Roberts, Nabors and Bryant (1996); Podmore & Meade, with Kerslake Hendricks (2000); and Karoly, et al., (1998). Recommendations made by US Commissions, such as the Committee on Early Childhood Pedagogy (2000), and the Committee on Integrating the Science of Early Child Development (2000), were also noted, because of their thorough synthesis of research findings. In New Zealand and abroad, better quality early education and/or improved child outcomes were found to be associated with staff having tertiary qualifications and, better still, holding a degree that specialised in early childhood education and included supervised practicum placements in early childhood settings.

This policy, and the associated funding, was markedly different from most other countries' childcare policies, especially for infants and toddlers. However, it should be noted that only a small minority of the approximately 4321 centres in Aotearoa/New Zealand had 100% qualified teachers. For example, in Auckland, where around half the early childhood services in New Zealand are located, only 14 percent of education and care centres received funding for having 100% qualified teachers in 2010. Most education and care centres in New Zealand employ between 50% and 95% qualified teachers. The minimum proportion of qualified teachers required by the Education (Early Childhood Services) Regulations 2008, Schedule 1, is 50% of the required staff,<sup>1</sup> including the person who is legally responsible for the centre (usually the head teacher, or a qualified and registered<sup>2</sup> teacher who has a delegation to be legally responsible when the head teacher is absent).

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1 The "required staff" is determined for each centre by numbers of children under 2-years and numbers of children aged over 2-years and their hours of attendance.

2 Once teachers have completed an approved teaching qualification, they can apply to the New Zealand Teachers Council for professional registration. In this report, we have used the terms 'qualified teachers' and 'registered teachers' interchangeably.

## Background to ECE 100% qualified teachers' target and funding

The administration of childcare centres was transferred from the Department of Social Welfare to the Department of Education in 1986. A short time later, integrated training courses for those wanting to teach in kindergartens or childcare centres were established in all teachers' colleges. The journey towards equivalence of qualifications for educators wanting to work in these two types of early childhood education settings had begun. It was boosted by the 1989 education reforms and the setting of a three-year, level 7 qualification benchmark for early childhood teachers on the newly-established National Qualifications Framework. Qualified teachers from the old kindergarten training colleges were already 'grand-parented' to this benchmark. Childcare qualifications had previously been shorter and lower level, so that the workforce needed to catch up if they wanted the transportable benchmark qualification: the Diploma of Teaching (Early Childhood Education).

In the wake of the *Before Five* policies (Department of Education, 1988), licensing announcements were made in 1990. The government of the day announced that the majority of staff in childcare centres would need to have the benchmark qualification by the late 1990s. The game-plan was changed by this announcement: what had been a matter of individual choice was to become shaped by a policy that created a looming employer necessity. However, in 1991, after an election, the qualifications target was delayed by the new government. Instead, it invested in the development of a national curriculum for all ECE services, which was called *Te Whāriki: He whāriki mātauranga mō ngā mokopuna o Aotearoa, Early childhood curriculum* (Ministry of Education, 1996) (hereafter called *Te Whāriki*). Soon after this curriculum was finalised, childcare services became officially known as education and care services.

In the 1990s, there was a muddling through in terms of qualifications requirements for licences. Nevertheless, tertiary providers remained committed to a three-year, level 7 Diploma of Teaching for early childhood teachers; indeed, many universities upgraded their diploma to a degree in that period. After another change of government, new policy reforms for early childhood education were released in *Pathways to the Future/Ngā Huarahi Arataki: 10-year plan for early childhood education* (Ministry of Education, 2002). The 10 year plan re-started the staged plan for level 7 diplomas and degrees to become the required qualification for early childhood teachers working in kindergartens and education and care centres.

### Pathways to the Future (2002)

The 10 year plan outlined strategies to improve the likelihood that early childhood education services would implement *Te Whāriki* fully and effectively. The set of policies to do with quality and qualified teachers was designed to achieve:

- Teachers, ratios and group sizes that support quality;
- Teachers who are responsive to children from all ethnic backgrounds, languages and cultures;
- Quality interactions between teachers, parents and whānau, and children;
- Quality practices in teaching and learning (Ministry of Education, 2002, p. 12).

The main strategy was to increase the numbers of early childhood education qualified and registered teachers. A range of action steps were set out to support this strategy. They included:

- Build on the direction created through the establishment of the Diploma of Teaching (ECE) as the benchmark qualification for licensing in ECE by 2005;

- Achieve pay parity for kindergarten teachers. The flow-on effects of this to the rest of the ECE sector will make ECE teaching a more attractive career;
- Extend current requirements for all teachers in kindergarten to be registered to other teacher-led services [meaning education and care centres] so that by:
  - 2007 50% of regulated staff in every teacher-led service are required to be registered teachers
  - 2010 80% of regulated staff in every teacher-led service are required to be registered teachers
  - 2012 all regulated staff in every teacher-led service are required to be registered teachers;
- Develop an implementation plan for the regulation of teacher registration requirements that includes the establishment of funding mechanisms which allow centres to continue to employ elders and students in training for teacher registration qualifications, training incentive grants and registration grants; and
- Research ECE teacher supply and workforce issues, including barriers to teacher education and retention of qualified teachers (ibid, p. 14).

## Meeting the qualifications targets

In terms of implementing the strategies to improve the quality of early childhood services in New Zealand (Ministry of Education, 2002), two main policy mechanisms were introduced to encourage centres to employ more qualified registered teachers: (a) regulations requiring 50% or more qualified teachers by 2007, together with announcing at that time that the regulations would change again in late 2010 to require 80% qualified teachers, and yet again at the end of 2012 to require 100% qualified teachers; (b) paying higher levels of subsidy to centres to cover the higher salary costs. In addition, to boost teacher supply, the government increased the number of places in teacher education courses, and increased the number of scholarships until 2011.

The 2007 target was met by the due date, with a great deal of hard work by individual students, teacher educators and supportive colleagues and employers. The Ministry's research on teacher supply indicated that the 2010 target would be harder to meet across the country and across all types of teacher-led services, so the date for reaching the target of 80% of teaching teams being qualified and registered teachers was extended to the end of 2012.

In 2010, the National-led government announced that it did not want to pursue the 100% target, and that funding to support centres with 100% qualified teachers would stop in 2011, when those centres would drop to the funding rate for centres with 80% qualified teachers. The reasons given were a blow-out of government expenditure on early childhood education in a time of fiscal restraint, and an assertion that eight teachers qualified out of ten was enough.

On 1 February 2011, the government stopped paying the 100% qualified teacher subsidy to centres. Those centres now receive a lower level of subsidy from the government — that is, the level for centres with 80% or more qualified teachers. Moreover, on the same date, this 80% level of subsidy was reduced.

## Research rationale

A range of stakeholders in New Zealand, as in many other countries, have a keen interest in how teaching teams with all qualified teachers work, compared with teaching teams with a mix of qualified teachers and other practitioners (Moss, 2007). Their interest in teams with all qualified

teachers ranges from teachers' patterns of work with children and their families to the teaching approaches used, teachers' communication with families, and the artefacts they produce with and for families. There is an interest, too, in whether quality indicators differ in these centres, compared with those with a mix of educators. Turning to centres that employ fewer qualified teachers, there is interest in patterns of deployment of qualified teachers and unqualified practitioners. There is strong interest also in the outcomes for children, their families and whānau in settings where there is a fully professional workforce.

## Background to the research project

Te Tari Puna Ora o Aotearoa/NZ Childcare Association (NZCA) is an incorporated society, representing a membership body of over 600 early childhood education services throughout Aotearoa/New Zealand. It is a bicultural organisation, governed by a Council made up of elected and appointed members. NZCA is recognised under the Education Amendment Act (1990) as a private training establishment, and is the largest single provider of early childhood teacher education in Aotearoa/New Zealand, now offering a Bachelor of Teaching (ECE). There are 15 teaching bases across New Zealand, from Kaitia to Dunedin.

NZCA decided to undertake the Early Childhood Teachers' Work research project to illuminate the work of teachers in centre-based education and care settings where there are 100% qualified teachers, and where there are infants and toddlers as well as young children. In order to better understand the value contributed by this type of teaching team, it was decided to also study centres with fewer qualified teachers, so as to provide a comparison and possible contrasts. It was felt that differences between these fully professional teams and teams with other qualifications profiles would be more marked if the comparison were with centres with 50–79% qualified teachers (rather than centres with 80–99% qualified teachers). Thus, the 50–79% category was included in the sampling methodology.

For the purposes of this research, a qualified teacher was defined as a graduate from a NZ Teachers' Council approved teacher education programme, or a person who has NZ Qualifications Authority recognition as a qualified ECE teacher (because they graduated before the NZ Teachers Council set the level 7 benchmark, or they graduated as a teacher overseas). Provisionally and fully registered teachers were included in the qualified teacher category in the study. In the centres included in the sample, a very large majority of the qualified teachers had graduated from an early childhood teacher education programme. A small number were qualified primary teachers (who can be employed to meet the required qualified staff levels for the funding, although they can never be the 'person responsible' legally).

When the research project was being planned in late 2010, it was predicated that education and care centres with 100% qualified teachers were likely to be a diminishing group. Moreover, we knew that locating centres with 100% qualified teachers would become impossible after that funding category ceased on 1 February 2011, because the 100% funding category would be merged into the 80% category in Ministry of Education databases. It was therefore essential to start the research in early 2011.

The methodology entailed mixed methods, described in detail in Chapter 2. In summary, the design was:

- case studies in ten education and care centres to gain an in-depth knowledge of profiles, patterns and purposes of teachers' work;

- a survey of a large number of education and care centres to ascertain profiles and patterns; and
- a literature review.

Planning for the Early Childhood Teachers' Work study also drew on what was learned from an NZCA on-line survey undertaken in 2010.

## NZCA survey of member centres, 2010

NZCA's membership services team undertook a survey in mid-2010 to identify centre responses to the Budget announcement that from 1 February 2011, government funding for centres with 100% qualified teachers would cease, and the grant to centres in a new 80–100% qualified teachers' band would be reduced. The survey closed with 219 responses. It found that:

- The majority of respondents were currently in the 80–99% funding band (51.6%), and a sizeable minority (32%) were in the 100% funding band;
- Asked to express their policy ideal re qualifications, the modal group (44%) ticked "All teacher-led services should be required to have 100% of their regulated teachers qualified (but this can include 20% in training)", and a further 36% ticked "All teacher-led services should be required to have 100% of their regulated teachers qualified (i.e., all regulated teachers have completed recognized qualifications)";
- 47% preferred to fill additional teaching positions (beyond regulations) with people enrolled in a teacher education programme; whilst 34% ideally wanted qualified teachers;
- 60% said their practice of employing qualified teachers was strongly affected by the amount of funding subsidy they received.

## The researchers

NZCA's research strategy includes a collaborative research project being undertaken each year involving staff in more than one location. These projects are called NZCA's 'flagship' projects. They feature more expert researchers working alongside and mentoring NZCA lecturers/pouako, in order to build internal research capability. In this project, external researchers were employed to mentor lecturer-researchers with less research experience. All researchers, both external and internal, had post-graduate degrees.

The NZCA research team was:

Anne Meade, PhD, consultant to NZCA: coordination, mentoring, analysis and writing

Janis Carroll-Lind, PhD, NZCA: analysis and writing

Margaret Kempton, PhD, NZCA: data entry

Lesley Robinson, Senior Lecturer, NZCA: data gathering

Sue Smorti, Senior Lecturer, NZCA: data gathering and writing

Margaret Stuart, PhD, NZCA: data gathering

Sissie Te Whau, ECE teacher: data gathering

Joanna Williamson, Base Coordinator/Lecturer, NZCA: data gathering and editing

Patricia Meagher-Lundberg, limited-term employee of NZCA: data gathering, inter-rater reliability checking and case study writing.

## Outline of the report

This report has 11 chapters. Chapter 2 describes the methodology, and introduces the case study research settings and sample families, and is followed by the literature review in Chapter 3. The on-line survey findings are the basis for Chapter 4, which focuses on the funding changes and the ways in which teachers and unqualified staff are deployed to carry out roles and responsibilities. Chapter 5 presents the findings from the quality ratings undertaken in the 10 centres. Chapter 6 explores the centre staff's communication with parents, in connection with planning the children's learning, from both teachers' and parents' perspectives, as well describing the children's portfolios prepared by teachers, with invitations to parents to contribute. A day in the life of teachers in the 10 centres is described in Chapter 7.

Chapter 8 focuses on interactions between adults and children, and the interactions and activities of the target children in the project. Some consequences of pedagogy in the case study centres are described in Chapter 9, the complexity of children's play and some outcomes for children. Chapter 10 examines practices where the teacher or educator is conscious of children's thinking and acts to extend their knowledge and understanding through sustained shared thinking. A summary of the collective case studies is provided in Chapter 11 before we compare and contrast the patterns and purposes of early childhood teachers' work that are influenced by the profile of teachers' qualifications. Finally, some conclusions are drawn.





## CHAPTER 2

# Methodology and participants

The Early Childhood Teachers' Work research project was established to gain more knowledge and understanding of the features and effects of having 100%, or a smaller proportion, of qualified and registered teachers in education and care centres.

## Research questions

The research team and project advisory group settled on four research questions. These focus on teachers' work, and the effects of their work on children's learning and family participation.

- What quality teaching practices feature (or are absent) in education and care centres with 100% qualified teachers and in centres with 50–79% qualified teachers? (For example, how are teachers deployed with groups of children? How are responsibilities for planning, assessment and evaluation organised and implemented?)
- What features in education and care centres with 100% qualified teachers and in centres with 50–79% qualified teachers promote (or constrain) some key aspects of children's learning and development? (For example, for complex play or engaging with a repertoire of symbols.)
- What features of these two types of education and care centres have positive (or negative) effects on family participation?
- How do the profiles, patterns and purposes of teachers' work differ in centres with 100% qualified teachers, compared with centres with 50–79% qualified teachers?

A mixed-method design for data gathering was used, with collective case studies (Wellington, 2000) being the central method for data gathering.

## Ethics approval

Ethics approval was given by NZCA's ethics committee on 12 January 2011. The research ethics committee is typically chaired by the Research Leader, a position that Anne Meade held at that time. However, for this project, the approval process was led by an NZCA Area Manager, a previous chair and an external academic on the committee.

The ethics application was comprised of the ethics form, which includes questions about possible risks and proposed mitigations, together with an attached proposal setting out the background and rationale, research questions, methodology, methods, descriptions of instruments, a profile of the research team, and confidentiality and consent forms.

The proposal was drafted by Anne Meade in consultation with NZCA's Chief Executive and senior staff, and the external research advisory committee.

The first discussion of the application by the ethics committee in December 2010 resulted in requests for further information, and a requirement for separate information sheets to go with consent forms to management, staff and parents. These were completed and the committee approved the proposal. Anne Meade submitted an update to the committee in February 2011, when one location was changed, because in that area there were no centres in the 100% qualified teachers' category which enrolled children under 2 years of age.

## Methodology

The main approach to address all four research questions entailed in-depth case studies in ten education and care centres. Robert Stake (1995) would classify these case studies as 'instrumental', because we wanted to understand patterns beyond the specifics of any particular centre. We also wanted to understand how government policy that affected staff qualification profiles influenced early childhood teachers' work in centres with contrasting profiles.

The case study fieldwork involved a range of methods, outlined below. To set the case studies into the bigger picture, two national surveys were carried out to help address research questions 1 and 4, and to learn more about the context for the case studies — that is, government funding for different proportions of qualified teachers. These surveys were undertaken after the government funding for centres employing the highest proportions of qualified staff was reduced.

A literature review of current research was also undertaken. It provided background information and some theoretical concepts for the research. Carmen Dalli, Victoria University of Wellington, provided the initial notes for the literature review, and a number of relevant articles. The Open Polytechnic library also identified pertinent literature. At the analysis stage, the literature review was updated. The review focuses on evidence-based studies of the effects of early childhood qualified teachers on children's learning and development and family/whānau participation, and on how qualified early childhood teachers differ in their practice from unqualified educators.

## Qualitative case studies

The qualitative part of the study used a case study method of gathering data in detail in 10 education and care centres. Jerry Wellington (2000, citing Stake, 1995), distinguishes three types of case study: intrinsic, instrumental and collective. The Teachers' Work project fits both the instrumental and the collective category:

- *Instrumental*: Our aim was to develop an understanding of the patterns and purposes of teachers' work when there are different profiles of qualified teachers in early education and care centres;
- *Collective*: These provide more data and examples to learn from and to aid theorising. Our aim was to compare and contrast five cases of centres which were similar in terms of employing 100% qualified teachers with five cases of centres which were similar in terms of employing 50–79% qualified teachers, so as to better understand patterns of work when team profiles differ.

Both the selection of the 10 centres and the coordination of knowledge between them, meant that our method fits Stake's category of 'collective' case study (Stake, 1995).

In effect, there were two collective case studies — one of five centres with 100% of their regulated staff being qualified teachers, and one of five centres with 50–79% qualified teachers. One reason for this design was to lessen the focus on particular centres. The ethics proposal stated that the report format would not entail presenting a series of case study or case record chapters. The researchers felt that gaining access could be very difficult if they told the centres that their case studies or case records would be published. In a small country such as New Zealand, it can be particularly hard to keep the identity of centres confidential when whole case records are disseminated.

The second reason for this collective case study design was that NZCA wanted to evaluate the merits of the New Zealand government's 2002 policy to set a target of 100% registered early childhood teachers in teacher-led services. Thus, these case studies are also 'evaluative' case studies. Stenhouse (1985, cited in Bassey, 1999), described evaluative case studies (single, or a collection of cases) as a style of case study that examines 'in depth with the purpose of providing educational actors or decision makers (administrators, teachers, parents, pupils, etc.) with information that will help them judge the merit or worth of policies, programmes or institutions' (p. 28).

Parlett and Hamilton (1977) state that 'illuminative evaluations' seek to address a complex array of questions about an innovative programme or set of settings. These include:

How it operates; how it is influenced by the various school [sic] situations in which it is applied; what those directly concerned regard as its advantages and disadvantages; and how the students are ... affected. (Parlett & Hamilton, 1997; cited in Bassey, 1999, p. 28).

The fieldwork to understand how teaching teams with different qualification profiles operate involved many days of observation by outsider researchers in each centre. The researchers also examined written records provided by the centre staff (e.g., the centre licence, philosophy statement, policies, staff rosters and Education Review Office report). Management and any teaching staff they nominated were interviewed for an hour or two, using a semi-structured interview schedule. The parents of the target children in each centre were asked to participate in a short interview (although the time taken by some parents was far from short, as they warmed to describing their child's learning at home and at the centre). The teachers in the centres provided additional data about child outcomes, in formats provided by the research team.

The centre-level case studies are not presented in this report as case records, although there are excerpts from them to illuminate the interpretations of the collective case studies. Each centre in the project verified the transcript of staff interviews, and was presented with a case record of their data after it was compiled into a comprehensive report. Once case records were provided, centre managers were free to make decisions about how to use them. Presenting case records to the centres was a commitment made by the research team at the time of gaining consent; we wanted to provide these as a 'gift' (*koha*) to the centre for providing access to the researchers.

Real names are not used in these case records, or in this report. New Zealand native bird names (for centres with 100% qualified teachers) and New Zealand native tree names (for centres with 50–79% qualified teachers) are used as pseudonyms for the centres.

The units of analysis in the Teachers' Work project are the teaching teams in the five centres with 100% qualified teachers *collectively*, and in the five centres with 50–79% qualified teachers *collectively*.

It was never our intention to generalise from individual cases statistically; ten centres are too few to apply statistical tests to generalise from. Rather we wanted the collective case studies to provide a rich picture (richer than could be gained from a large-scale quantitative study ruled by tests of

significance) of teachers' work in settings with contrasting team profiles. Like Yin (1994), we did engage in analytic generalisation. With five sets of data in each category of centres, it became possible to see some patterns associated with a qualification profile, and to explore some likely explanations for those patterns. It is not appropriate to specify the probability of those explanations.

These case studies illuminate the effects of the internationally innovative policy of setting out to have 100% of required (regulated) staff holding a teaching qualification in education and care centres. They are also meant to enhance understanding of the complex social and professional situations of teachers who team teach in early childhood settings.

The typicality of one feature of the collective cases, the deployment of qualified teachers and unqualified staff across different roles within centres, was checked by triangulation with an on-line survey. The same template was completed in the case study centres and during the on-line survey in the second term of 2011 (see also Chapter 4).

Sometimes our unit of analysis is the type of adult-child interaction (for example, 'sustained shared thinking'). As we gathered over a thousand observations of the target children in each centre, paying particular attention to their interactions with staff, we feel confident that the patterns in children's experiences in these centres can be seen as typical. These observations were done across at least eight days in each centre, and in many learning areas.

Case studies are of high interest to the sector in general, and to families, teachers, teacher education providers, professional development stakeholders, policy makers and researchers.<sup>3</sup> We anticipate wide interest in the current project too.

## Case study framework

The Early Childhood Teachers' Work project team adapted the Effective Provision of Pre-school Education (EPPE) project framework for case studies in the UK (Siraj-Blatchford, Sylva, Taggart, Sammons, Melhuish & Elliot, 2003). The New Zealand project also used one of the tools used by the EPPE team, the Adaptive Social Behavioural Inventory (Hogan, Scott & Bauer, 1992, used with permission) and also their 'sustained shared thinking' construct (Siraj-Blatchford, 2010, p. 157), in some of our event sampling.

The EPPE case study framework included:

- Centre quality rating scale (Sylva, Siraj-Blatchford & Taggart, 2006);
- Child observations of a sample of children per centre;
- Assessments of learning of sample children;
- Observations of teachers at work;
- Centre documentation (centre lay-out plan, policies, rosters, recent newsletters, planning, inspection reports);
- Interview with manager/staff; and
- Interviews with parents of sample children (Siraj-Blatchford, Sylva & Muttock, 2002, pp. 19–20).

The EPPE researchers' reasons for using collective case studies were quite different from ours. EPPE case studies followed up on 12 effective English preschools where children had done very well on a range of outcomes measures. They had a great deal of previously collected data about children in these and many other centres, including data on 3000 children who had participated

<sup>3</sup> This was demonstrated by the Waves series of publications, edited by Anne Meade, 2005–2010, covering the Centres of Innovation programme. Full publication details can be found in the Reference List.

in their earlier longitudinal study of these children in their pre-school and early school years (see various Technical Reports from the EPPE project between 1999 and 2007, published by the Institute of Education London and Department for Education and Employment). The aim of the intensive case studies was to:

tease out the specific pedagogical and any other practices that were associated with achieving 'excellent' outcomes compared with those centres with 'good' or more 'average' outcomes. ... [The analyses] provided explanations for many of the patterns and associations between practices ... and developmental outcomes. (Siraj-Blatchford, 2010, p. 153.)

The Teachers' Work researchers, on the other hand, had no prior data on the centres or the children attending them. The centres studied in New Zealand were randomly selected from stratified databases (by levels of qualified teachers and by having both toddlers and young children). Our project design focused on one point in time, and primarily on comparing staff-child interactions, and the profiles, patterns and purposes of teachers' work, in centres with differing levels of qualified teachers. Another difference is the collection of data about toddlers, as well as 4-year-olds.

Moreover, the Teachers' Work researchers explored the effects of early childhood education on children 'in the present' as well as 'for the future' (Meade, 1988; see also Duhn, 2012). Teachers' Work findings about effects 'in the present' included:

- simple play (described as low cognitive challenge by Sylva, Roy and Painter, 1980) versus complex play (described as high cognitive challenge by Sylva et al);
- 'sustained shared thinking' (Siraj-Blatchford, 2010, p. 157);
- social and behavioural competence (Hogan et al., 1992);
- repertoire of engagement in symbol systems (the 'four roles model') (*Kei Tua o te Pae, Book 16*, Ministry of Education, 2009a) and a fifth 'knowing' role (*Te Whatu Pōkeka*, Ministry of Education, 2009b); and
- confidence and competence as a learner and communicator (*Te Whāriki*, 1996, p. 44) for 4-year-olds.

In our New Zealand study, a rating scale with known predictive value in this country was used: NZCER's *ECE Quality Rating Scale* (c2003). This rating scale has previously been used for the location-based evaluation of the implementation of *Pathways to the Future/Ngā Huarahi Arataki* (Mitchell, Meagher-Lundberg, Mara, Cubey & Whitford, 2010).

## Case study fieldwork

Case study fieldwork occurred in 10 centres in five locations. (The selection process is described below.) Each case study involved two days' orientation and relationship-building in the centre when gathering background information (centre documentation) was begun, plus 8 to 10 days of observational and interview data collection. Data gathering was spread across an average of a month in each centre, with visits arranged to fit around centre commitments wherever possible. Interviews with parents were conducted in the centres, in families' homes or over the phone; a few parents asked to complete them in a questionnaire-style format. All the data were collected in Term 1 and early Term 2 in 2011.

Prior to entering the case study centres, the researchers took part in two days' training, focused primarily on instrument use, in Wellington centres willing to be pilot settings. In addition, an experienced researcher gave on-site advice and support to each lecturer-researcher in their first days in their first case study centre.

Inter-rater reliability checks for the centre quality ratings data was carried out by one researcher who had used the NZCER ECE Quality Ratings instrument previously in three other research projects. Where agreement was too low between her and the lecturer-researchers, they were done again until at least 80% agreement was reached. Quality ratings data were collected on at least two separate days in each centre.

The observations and interviews describe and explore the deployment of teachers and their pedagogical interactional strategies. 'Process quality' (focused on adult-child interactions) was an important focus of the research. Research shows that "interactions between children and adults are the primary mechanism for student development and learning" (Pianta et al., 2008, p.1). Centre quality ratings were compared with findings from another study where NZCER's instrument was used (Mitchell et al., 2011; see also Chapter 5). Interviews with parents covered family demographics, family learning environments and centre-parent communication. A matrix of the methods used to address the research questions is set out in Table 1.

TABLE 1: METHODS USED TO ADDRESS THE FOUR RESEARCH QUESTIONS

	On-line survey	Interviews	Documents	Rating scale	Observations	Event sample	Teacher assessment
1. What quality practices feature?		Unique features Philosophy/ pedagogy	Unique features Philosophy Policies ERO	NZCER ECE Quality Rating Scale	Adult-child interactions	Complex play, Sustained shared thinking, Teacher mediation	Portfolios. Social profile, and repertoire of engagement (from Ministry exemplars)
2. What features promote key aspects of learning & development?	Finance	Finance Pedagogy	Philosophy ERO	NZCER Rating scales	Adult-child interactions	Complex play, Sustained shared thinking, Teacher mediation	Portfolios
3. What features have positive effects on family participation?		Parent involvement, including planning	Philosophy ERO	NZCER Rating scales			Portfolios
4. How do profiles, patterns & purposes differ by levels of teacher qualification?	Deployment of staff — qualified and unqualified	Deployment of staff — qualified and unqualified	Shift schedule ERO		Adult-child interactions	Complex play, Sustained shared thinking, Teacher mediation	

Triangulation was built into the instrument development and data collection in many ways:

- The effects of the government funding reductions for centres with 100% qualified teachers was canvassed in the staff interviews and observations in the case study centres, and explored with different centres that took part in the on-line survey;
- The deployment of qualified teachers and unqualified staff was sought via a form completed by senior staff, and was further discussed in staff interviews. Roster schedules added information. The observations rounded the picture, sometimes filling in gaps. The form exploring deployment (roles and responsibilities) which was given to the managers to complete was used in the survey as well;
- Approaches to pedagogy were described in the staff interviews, and triangulated with the observational data and with analysis of children's portfolios;



- The centre philosophy was in the background documents and was teased out in staff interviews. Education Review Office (ERO) reports typically have information about philosophy of practice too;
- Parent involvement in planning and parent–centre communication was explored in both the staff interviews and parent interviews. The portfolio analysis embraced these too;
- A day in the life of the teachers was described in staff interviews and added to via observational data;
- Some quality features that were captured when the NZCER Quality Rating Scale was administered twice were validated through the observations of adult–child interactions; and
- The research template provided to teachers to assess the 4-year-old target children's repertoires in using symbol systems (*Kei Tua o Te Pae, Book 16*), was employed again by the researchers analysing the teachers' assessment documentation (but not the assessment questions drawn from *Te Whatu Pōkeka*).

## Surveys

The research coordinator worked with NZCA's member services to undertake a short survey of a range of centres across the country, about the time government funding was reduced in February 2011. The Teachers' Work team specifically wanted to find out the effects on a wide range of centres with high proportions of qualified teachers. The survey provided qualitative data about the effects of change in the policy context, and quantitative data focused on staff profiles and staff deployment, to supplement our case study data.

A second on-line survey was sent out by the project coordinator in Term 2 of 2011 to a far wider range of education and care centres. It asked about the effects following the funding reductions, and explored the deployment of qualified teachers.

## Analysis

Rich qualitative data and volumes of time-interval quantitative data were collected, analysed and interpreted. Rating scale data was compared for the collective of five centres with a profile of 100% qualified teachers and the collective of five centres with 50–79% qualified teachers. These data were compared with a similar study using NZCER's quality rating scale (the evaluation of the implementation of *Pathways to the Future/Ngā Huarahi Arataki*, Mitchell et. al., 2011) by their statistician.

A major focus was the patterns in educator-child interactions. These interactions are identified in the literature as significant for children's learning (see Chapter 3). Another focus was the patterns and purposes of deployment of qualified and unqualified teachers in the centres.

Quantitative data analysis was supported by NZCER's statistician. Adult–child interaction data are voluminous. Because nearly 12,000 one-minute observations were carried out, and because some patterns in these data came up again and again across time, the comparisons of these data from the centres with 100% qualified teachers and centres with 50–79% qualified teachers are strongly supported.

## Instruments

The instruments selected or designed for data gathering are described in the relevant chapters of the report.



## Selection

### Selecting case study centres

As Stake (1995, p.4) has observed, "Case study research is not sampling research." Nevertheless, the case study centres were selected and recruited by a process akin to sampling. The rationale for this approach was to avoid accusations that centres had been selected from amongst those with 100% qualified teachers which were known to be doing a good job. Thus, the selection process was carried out with considerable care in order to minimise bias (or perceptions of bias).

First, the locations for the fieldwork were established. These included:

- Auckland: four case studies, including in South Auckland;
- Smaller cities: five case studies in three cities, including one in the South Island; and
- Provincial town: one case study.

Next, for the city locations, the Ministry of Education databases for education and care centres enrolling children aged 12 months to school age were stratified into the three funding bands pertaining to levels of qualified teachers that existed in late 2010. The centres in the 80–99% funding band were filtered out.

Then, for each location, centres were randomly drawn in a process supervised by an NZCA ethics committee member. Names for first, second and third approaches to centres were drawn from the two stratified groups (centres with 100% and 50–79% qualified teachers).

Amongst these 10 centres, two centres were selected that are described as bicultural (in their own words and/or in their Education Review Office reports). NZCA's commitment to bicultural practices meant that we wanted to include two bicultural centres, in order to better understand their staff profiles and deployment, kaiako patterns of work, and child outcomes. Their inclusion broadened what could be learned about teachers' work. To enhance comfort and understanding of kaiako and whānau, a Māori researcher was included in the research team in the two kaupapa Māori centres. It is acknowledged that kaupapa Māori methods were not employed in the research design.

The final selection of 10 centres was based on the requirement that half be in the 100% qualified teachers funding category, and half in the category with 50–79% qualified teachers.

Consideration was given to some matching of pairs in the different locations (one 100% and one 50–79%), for example for equity funding, but we soon realised that this was not feasible. Some locations had only a few centres which were in the 100% qualified teachers' category and also had children both under and over the age of 2. Indeed, the 'net' was widened to a provincial town in order to achieve our planned sample.

In each location, three education and care centres declined to take part in the project; in each case, the second centre we approached agreed to take part. In addition, just as one case study was about to start, the head teacher had an accident that meant she would be absent for weeks, and the research coordinator decided we should withdraw from that centre. An approach to another centre was successful.

## Selecting target children and their families

Within each case study centre, the rolls were stratified into children aged 4 and toddlers aged under 3. Then two samples of children were randomly drawn: six young children aged 4, and four toddlers aged between 10 and 30 months.<sup>4</sup>

## Process for on-line survey

For the survey conducted in Term 2 of 2011, all education and care centres on the Ministry of Education database which had agreed to accept communication from educational groups were sent the survey form by email (after the database had been purged of email contacts that no longer worked). Two reminders were sent out to complete the survey.

## The case study centres

The selection process obtained 10 centres ranging in licence size from 25 to 100 children. There is a mix of community and privately-owned centres, but no very large centres owned by corporations were selected. An overview of the 10 centres is provided in Table 2 below. Note that centres with 100% qualified teachers have native bird pseudonyms, and centres with 50–79% qualified teachers have native tree pseudonyms.

TABLE 2: INTRODUCING THE 10 CASE STUDY CENTRES

100% qualified teachers: Birds		50–79% qualified teachers: Trees	
Tui	Decades old. All day. Community-owned with elected committee. Support provided by another organisation. Purpose-built; renovated recently. Licensed for under 40 children (20 under 2 years). Under 2s and over 2s mostly separated. Predominantly Pākehā children.	Totara	Decades old. All day. Community-owned; under an umbrella organisation. Converted residential house. Licensed for fewer than 25 children (six under 2 years). Mixed-age setting, with the under 2s mainly separate. Sizeable minority of Māori children.
Piwakawaka	Decades old. All day. Not-for-profit with management committee. Part of a larger complex of centres. Purpose built, renovated recently. Two licences: over 2s 35 children; under 2s 20 children. Separated age groups. Multicultural. Not far from a tertiary organisation.	Pohutukawa	Decade or so old. All day, but majority of children attend half-days. Family-owned and operated. Converted building, probably residential originally. Licensed for 40 children (15 under 2s). Separated age groups. Sizeable minority of Māori children.
Kaka	Only 3 years old. All day. Privately owned (one of two). Purpose built. Two licences: over 2s 50 children; under 2s 50 children. Separated age groups. Multicultural. Christian values.	Kowhai	Only 3 years old. All day. Many attend part-time. Established by an umbrella organisation in a low income suburb. Purpose built. Licensed for 50 children (10 under 2s). Mixed age grouping. Majority of children are Māori and/or Pasifika.
Kakapo	Thirty years old; licensed for 10 years. All day. Community owned. Purpose-built. Licensed for 50 children (10 under 2s); many children enrolled, as many attend part-time. Not far from a tertiary education organisation.	Kauri	About 16 years old, most with same owner. All day. Owner and operator. Converted residential house. Licensed for 25 children (8 under 2s). Mixed age centre.
Kereru	About 7 years old. All day. Bicultural setting. Family owned and operated. Purpose built. Licensed for 24 children — birth to school age. Mixed age setting.	Rata	Established about 10 years ago. All day. Bicultural setting. Owned by an umbrella organisation. Purpose-built. Licensed for 50 children (12 under 2s). Mixed aged grouping; with spaces accessible to all. Not far from a tertiary education organisation.

<sup>4</sup> Most of the toddlers were aged under 2; because centres generally talk about the 'under 2s' and 'over 2s', we have done the same.

The profiles of staff at the 10 centres are summarised in Table 3. Note that the centres in the 100% qualified teachers' category had all qualified teachers to meet the required number of staff (according to regulation and funding rules). Three of these centres had part-time staff in training, in addition to the required staff. There is a total of 8 full-time equivalent staff at Pohutukawa and Rata (and Rata also has regular parent helpers).

TABLE 3: STAFF PROFILES — QUALIFICATIONS

100% qualified	Staff with qualifications	50–79% qualified	Staff with qualifications
Kaka	13/17	Kauri	4/8
Kakapo	12/12	Kowhai	4/7
Kereru	5/6	Pohutukawa	4/9
Piwakawaka	12/14	Rata	4/9
Tui	9/9	Totara	3/6

## Summary of philosophies of practice

Careful, recursive analysis of the data was undertaken to ascertain similarities and differences between the philosophical approaches of the case study centres. Analytic steps for this comparative analysis involved linking key words in the case study texts, and coding and categorising the data according to the frequency with which these key words were mentioned. Data from the interview transcripts added further support to the findings. Interviews included questions about the unique features of the service, the centre philosophy in their own words, and the theorists who had influenced the centre philosophy and practice.

In each centre, staff voiced their perceived points of difference and uniqueness from other early childhood services. The cultures and ethos of these centres reflect the diversity of New Zealand's early childhood services. Culture, in terms of ethnicity, was also a clearly articulated philosophical perspective for some case study centres. While no centre in this study identified as being bilingual, two centres (one in each qualification band) were underpinned by a strong kaupapa Māori philosophy. Others, too, expressed pride in their commitment to biculturalism and Te Tiriti o Waitangi; for example, one teacher commented, "Our kaupapa is biculturalism."

Similarity between those centres with 100% qualified teachers and those with 50–79% qualified teachers was most noticeable around adopting child-led practices to guide, empower, challenge, or extend learning, with four of the five centres with 100% qualified teachers and three out of the five centres with 50–79% qualified teachers highlighting this as part of their philosophy. References were consistently made to *Te Whāriki* as the framework underpinning practice. Two centres with 100% qualified teachers emphasised their Christian values.

In terms of philosophies of practice, the clearest difference between the two categories of centres related to the influence of theories. One of the centres with 50–79% qualified teachers referred to Bronfenbrenner's ecological model, and reported that a sociocultural approach underpinned their reason for operating a mixed-age grouping; another centre team in this category touched on the influence of Emmi Pikler's research (1994) and Magda Gerber's philosophy (1998, 2005). None of the five centres with fewer qualified teachers explained the features of their practice by drawing on specific theorists. In contrast, interviewees from three centres with 100% qualified teachers spoke extensively about the influence of specific theorists. For example, research and theory relating to infants' learning, such as attachment-based learning, expressed by Magda Gerber and Emmi

Pikler, were used by the head teachers in three centres to explain their primary caregiving systems for infants and toddlers. Similarly, head teachers drew on their knowledge of Loris Malaguzzi and/or Reggio Emilia theory and practice to explain their project-based practice. In sum, the interview data and centre documents show better linkage of theory to practice (fuller coherent explanations for their practice) in the centres with 100% qualified teachers.

Other differences were also apparent within the various case study centres. High quality early childhood education was espoused only by centres with 100% qualified teachers, although only one mentioned qualified teachers as being part of their centre's unique profile. Three centres with 50–79% qualified teachers espoused the importance of professional learning for staff, probably because they were still building higher proportions of qualified teachers. Interviewees in this category said that they needed to invest more in professional development in order to help their unqualified staff understand and use good practice.

Linking philosophies to features that promote or constrain key aspects of children's learning and development (see Research Question 2) is somewhat problematic; nevertheless, every centre with 100% qualified teachers described themselves as being a community of learners or a community of practice, and also considered self-review to be an important aspect of their profile.

Themes emerged when the philosophy statements were studied. The importance of respectful relationships was one consistent theme across all centres. Centres with 50–79% qualified teachers were most likely to emphasise the importance of good communication and partnership with parents. The centres with 50–79% qualified teachers were the only ones to highlight a commitment to inclusive practice as part of the centre's philosophy.

This analysis of philosophies of practice has provided some insight into the uniqueness and diversity of the 10 early childhood centres that participated in this study. It has also introduced some of the purposes for teachers' ways of working.

## Description of target children

As well as gathering observations focused on the target children, researchers interviewed a parent of each of these children to gather demographic and family learning environment information, as well as parents' perceptions of how teachers and parents communicated with each other about the child's interests and learning.

### Age

The target children were very diverse in their demographic characteristics but as explained above; their ages were limited by the selection criteria. As Table 4 shows, 60 percent of the children in each sample were aged 4 or more, and 40% were aged less than 3 years.

TABLE 4: AGES OF TARGET CHILDREN BY LEVELS OF TEACHER QUALIFICATIONS

Staff qualifications	100% qualified		50–79% qualified	
	Number	%	Number	%
4 years and over	30	60	30	60
Under 3 years	20	40	20	40

## Gender

The random sample resulted in more boys than girls in both types of centres. In the centres with all qualified staff, 52 percent of the target children were boys and 48 percent were girls.

The difference was more marked in the centres with fewer qualified teachers, where 60 percent of the target children were boys and 40 percent were girls.

TABLE 5: GENDER OF TARGET CHILDREN BY LEVELS OF TEACHER QUALIFICATIONS

Staff qualifications	100% qualified		50–79% qualified	
	Number	%	Number	%
Female	24	48	20	40
Male	26	52	30	60

## Ethnicity

The sample included a range of children from various ethnic groups. There were some differences between the ethnic distributions of children in the two types of centres. The children at centres with all qualified staff were more likely than the children at centres with fewer qualified staff to have families who identified as New Zealand European/Pākehā/New Zealanders, or as Asian. The centres with all qualified staff had 54% of children in this category, compared to 38% at the centres with 50–79% qualified staff.

TABLE 6: ETHNICITY OF TARGET CHILDREN BY LEVELS OF TEACHER QUALIFICATIONS

Staff qualifications	100% qualified		50–79% qualified	
	Number	%	Number	%
NZ European/Pākehā/ New Zealander	27	54	19	38
Māori	5	10	14	28
Māori and Pākehā	2	4	6	12
Asian	6	12	1	2
Pasifika and Pākehā/European	3	6	2	4
Other	7	14	8	16

## Mother's education

A number of studies have found that having a mother with higher educational qualifications has a significant influence on children's school achievements (see Ermisch & Francesconi, 2001; Wylie & Hodgen, 2007). Over half of the mothers of target children at the centres with fully qualified teaching teams had degrees, compared with under a quarter of those at the centres with some unqualified staff. This may be explained by the location of two of the centres with all qualified staff near tertiary institutions. One of the centres with 50–79% qualified teachers was near a tertiary institution. Relatively few mothers of target children (8% for both categories of centres) had no qualifications, although it may be possible that those mothers who did not respond to this question also came into this category.

TABLE 7: MATERNAL QUALIFICATIONS OF TARGET CHILDREN BY LEVELS OF TEACHER QUALIFICATIONS

Staff qualifications	100% qualified		50–79% qualified	
	Number	%	Number	%
Degree	27	54	11	22
7th Form/Diploma	12	24	16	32
6th Form/Trade Certificate	7	14	14	28
None	4	8	4	8
No data	0	0	5	10

## Home language

Table 8 shows that English only is spoken in a higher percentage of homes of target children attending centres with all qualified teachers (66%) than of homes of target children in centres with fewer qualified teachers (56%). A combination of English and Māori is more common for target children at the centres with fewer qualified staff (28%), in particular the bicultural centre in this category, than for children in centres with all qualified staff (10%). It is also interesting to note that almost half of the target children in centres with 50–79% qualified staff live in households where more than one language is spoken, whereas in centres with 100% qualified teachers, only one third of target children do so.

TABLE 8: HOME LANGUAGE OF TARGET CHILDREN BY LEVELS OF TEACHER QUALIFICATIONS

Staff qualifications	100% qualified		50–79% qualified	
	Number	%	Number	%
English only	33	66	28	56
English and Māori	5	10	14	28
Other L1* and English as L2*	6	12	2	4
English L1 and other L2	3	6	2	4
English and Pasifika	2	4	3	6
Only a language other than English	1	2	1	2

\*L1 is the first language spoken mainly at home. L2 is an additional language spoken less often at home.

## Conclusion

This chapter has described the ethics process, the methodology, and the rationale for the use of collective case studies. The participating centres have been introduced, and the demographic characteristics of the target children have been outlined.

The next chapter provides a review of the literature on qualifications for early childhood teachers, and how relevant qualifications affect teaching practice and outcomes for young children.



## CHAPTER 3

# Literature review

### Introduction

This chapter reviews the research literature that informs and supports the aims of this study of early childhood teachers' work. Its main purpose is to provide an overview of the literature in order to ground the study in up-to-date evidence relevant to the research questions, and also to support discussion of the study's findings within the current context.

In sourcing background literature, the primary focus was on summarising current research about quality early childhood education and teacher qualifications. Most of the references were assembled through computer searches of key journal articles and books written between 2000 and 2011. Earlier references have been included if they are relevant and are seminal studies on the topic. Other references have been selected for background or overview information, as significant works on qualified early childhood teachers, or because they are guides to further sources of information. This chapter draws on the work of Carmen Dalli, who provided valuable references to inform the literature review.

### Indicators of quality practice

'Structural quality' refers to the structural and regulatory aspects of the education and care environment which determine the conditions for quality practice. Quality practice is measured by both structural indicators (such as teacher qualifications, physical environment, materials, group size, child–adult ratio) and process indicators (such as adult responsiveness, stimulation, warmth, and discipline). This means that structural and regulatory elements may not be sufficient indicators of quality by themselves; rather, they establish the conditions for quality practice (Goelman, Forer, Kershaw, Doherty, Lero, & LaGrange, 2006).

Huntsman (2008) found that the most significant factor affecting aspects of structural quality and caregiver non-authoritarian beliefs on childrearing was education, qualifications and training. An Aotearoa New Zealand study by Smith, assisted by Ford, Hubbard and White (1995), reflected findings commonly emerging from overseas research about the interrelated nature of structural and process elements of quality. Having observed 200 children aged under 2-years in 100 early childhood centres across Auckland, Hamilton, Wellington, Canterbury, Otago and Southland, the study found that the quality of education and care experienced by these toddlers and infants was significantly correlated with the qualifications, training and background education of the educators, and their working conditions. Staff qualifications were also highlighted as indicators of quality in a literature review by Podmore and Meade (2000).



The term 'iron triangle' of quality was first coined by Phillips (1987) to depict adult–child ratios, group size and staff qualifications as the three interconnected aspects that are consistently found to improve quality. Thus teacher qualifications are one part of the quality early education equation.

This chapter is divided into two parts, and addresses the following two questions:

1. Do qualified ECE teachers make a difference for children's learning and development?
2. How do qualified ECE teachers differ in their practice from unqualified educators to make a difference for children's learning and development, and for family/whānau participation?

## Do qualified teachers make a difference for children's learning and development?

There is consensus in the literature that staff need to be well educated and professional, with qualifications directly relevant to early childhood education, in order to deliver better outcomes and services that focus on the social, emotional, cognitive and physical development and learning of children attending formal early childhood services (Barnett, 2003; Berk, 2006; Canadian Council on Learning, 2006; Education Review Office, 2009; Howes, 1997; Kane, 2005; Mitchell et al., 2008; Munton et al., 2002; NACCRRRA, 2008; Norris, 2011; Penn, 2009; Podmore & Meade, with Kerslake Hendricks, 2000; Smith, 1999; Wylie et al., 1996). This is supported further by research by Burchinal, Cryer, Clifford, & Howes, 2002; Howes, Whitebook, & Phillips, 1992; NICHD, 2002; Whitebook, 2003a; Whitebook, 2003b; Whitebook et al., 1990, cited in Torquati, Raikes & Huddleston-Casas, 2007; and Whitebook, Gombay, Bellm, Sakai & Kipnis, 2009.

## Why are early childhood teaching qualifications important?

Qualified teachers have a significant impact on the quality of learning and teaching (Kane, 2005). Tarr (2006) states:

The notion of what a teacher knows (knowledge), shows (attitudes) and does (skills) having an impact on the learners they work with (and on what the learners learn) is a long held 'given' amongst education practitioners, parents and policy makers the world over. (p. 25)

Although the level of benchmark qualifications and proportion of qualified staff in early childhood centres varies from country to country (Dalli et al., 2010; Munton et al., 2002), the research literature confirms that qualified teachers result in an improved quality learning environment and positive outcomes for children (Munton et al., 2002).

Access to appropriately qualified teachers helps to bridge inequity by providing children from at-risk or low socioeconomic environments with the social and academic experiences known to foster successful learning (AACTE, 2004).

The Effective Pre-School and Primary Education (EPPE) project is the largest European study of the impact of early education on children's learning and developmental outcomes. A key finding from this study, according to the researchers (Sylva, Melhuish, Sammons, Siraj-Blatchford & Taggart, 2010), was the direct relationship between the qualifications of the staff and the quality of the early childhood settings. The project showed that well-resourced early childhood services with higher numbers of qualified teachers were providing the highest quality of education and care, and the children attending these made better progress (Sammons, 2010). In particular, teachers with tertiary qualifications produced the highest cognitive outcomes for children attending their centres (Siraj-Blatchford, 2010). Furthermore, the higher the qualifications of the centre manager,

the higher the quality of the setting (Cassidy, 2008; Sylva, 2010). These findings and the evidence of their impact on child outcomes prompted intervention by the UK government to increase the skills and qualifications of its early childhood practitioners. They pledged a “commitment to radical reform of the early years’ childcare workforce through a new qualification and career structure” (Her Majesty’s Treasury, 2004b, p. 43, cited in Taggart, 2010, p. 215), and stated:

... Better quality pre-school centres are associated with better outcomes, with key explanatory factors being: staff with higher qualifications, staff with leadership skills and long-serving staff; trained teachers working alongside and supporting less qualified staff; staff with a good understanding of child development and learning and strong parental involvement. (p. 214)

A critical analysis of 40 published studies from 1989–2004 identified the significance of professional development of teachers, and the importance of a bachelor’s degree and educational standards for early childhood teachers (Saracho & Spodek, 2007). Other studies in the USA (Peisner-Feinberg & Burchinal, 1997) and in Northern Ireland (Melhuish et al., 2006) have also identified the effects of greater staff training and qualifications, and its relationship to quality of provision. Another English study found that although teachers were successful in developing practice and staff confidence and competence, which impacted positively on outcomes for children, a moderating factor in their success was the qualifications of the staff (Garrick & Morgan, 2009).

In New Zealand, based on the evidence from its recent inquiry into non-parental education and care of infants and toddlers, the Office of the Children’s Commissioner called for policies that support the provision of early education and care services by a knowledgeable and skilled workforce. One recommendation was that the Minister of Education direct her officials to report on the extent to which services to infants and toddlers in licensed early childhood services are provided by qualified and registered teachers, and any trends that are occurring (Carroll-Lind & Angus, 2011).

Mitchell, Wylie and Carr (2008) cite another EPPE study where having a leader with a degree qualification was associated with decreased problem behaviours in children, compared with having a leader without qualifications. Similarly, both WestEd (2002) and Fiene (2000) confirmed that the best setting for children under the age of 2 is with an accredited provider that has qualified and experienced staff. Fiene’s report also recommended that both the director and owner of an early childhood service should hold early childhood qualifications, and provide ongoing intensive professional development and mentoring programmes for all staff. These results are also borne out by WestEd (2002).

An examination of the relationship between teacher qualifications and the quality of early childhood programmes, as part of Tout, Zaslow and Berry’s review of literature (in Zaslow & Martinez-Beck, 2005), showed that there was a general consensus that “more education, particularly with specialization in the early childhood development, is related to a higher quality of ECE programs and interactions between teachers and children” (p. 79).

## Better outcomes for children

The EPPE study established clear links between education and care processes, and children’s developmental outcomes (Sylva et al., 2010). In particular, significant associations were found between qualified teachers and better child outcomes in literacy and social development at 5 years of age. Reasons given for this were that qualified and educated teachers use more words

and more complex language in their communications with children. Qualified teachers also employ more sustained shared thinking episodes that are associated with positive outcomes (Mitchell, Wylie, & Carr, 2008). Marshall, Creps, Roberts, Glantz, and Wagner Robeson (2004) found that better educated teachers provided better quality overall, including more developmentally appropriate stimulation and better relationships between staff and children.

In 1991, the United States National Institute for Child Health and Development (NICHD) launched its longitudinal Early Child Care and Youth Development study of more than 1000 children from 1 month old, to investigate the short and long-term relationship between child-care and children's development. Its 2003 report on the impact of childcare quality on children's cognitive development found that all the elements of quality were associated with centres whose staff held early childhood teacher qualifications (NICHD Early Child Care Research Network, 2003).

Another large study (Montie, Xiang, & Schweinhart, 2006) involved 1897 preschool children across 10 countries (Finland, Greece, Hong Kong, Indonesia, Ireland, Italy, Poland, Spain, Thailand and the USA). Montie and colleagues found that as the level of teacher education increased, so did the children's age-7 language competency.

Fiene's (2002) synthesis of the literature found evidence that qualified staff were more likely to continue in early childhood services' employment, and their stability promoted secure attachment and social development in young children. The same review also found that staff with a bachelor's degree (with or without specialised training), or with no bachelor's degree but with specialised early childhood education training, behaved more sensitively and less harshly, engaged in more positive interactions with children, and displayed less detachment, as well as less punitiveness.

Another large US study (Early, Bryant, Pianta, Clifford, Burchinal, Ritchie, Howes & Barbarin, 2006), involving over 800 children aged 4–5 years, across six randomly selected states, linked children's gains in mathematics and basic skills to teachers' education and qualifications.

Norris' (2011) review of the literature exploring teacher qualifications and child outcomes identified the following features related to teacher qualifications in the various studies under scrutiny:

- Children performed better on expressive vocabulary, language comprehension and applied problems;
- Children showed better school readiness outcomes;
- Children showed stronger cognitive outcomes; and
- Children engaged in more complex social and cognitive play (pp. 148–149).

There is a close inter-relationship among elements of quality, and it is not easy to tease out the effects of specific variables, such as qualified staff. Nevertheless, Munton and colleagues (2002) undertook an extensive study of the interconnected elements, and concluded that teacher education and training has a mediating effect on positive child outcomes in conjunction with the other known variables for quality.

Although quality can be affected by other structural variables, quality is experienced by children through caregiving behaviours, teacher–child interactions, and learning activities. These are more likely to be positive when early childhood teachers have received education and training (Ackerman, 2004).

## How do qualified teachers differ in their practice from untrained educators to make a difference for children's learning and development, and for family/whānau participation?

While many aspects of practice contribute to successful learning, it is the interrelationship between those factors that underpins the quality of the early childhood service provision (Education Review Office, 2010). Practitioners' education, qualifications and professional learning are key factors. Early et al. (2007) reported the results of seven studies. Their synthesis of research shows that increasing teachers' qualifications is not the sole answer to making a difference to children's learning and development. Rather, it is the teachers' practice that improves quality and maximises children's academic gains. So is there a difference in the practice of qualified teachers, compared to that of untrained educators?

### What do the qualified teachers do?

Farquhar (2003) describes evidence on the characteristics of quality teaching that maximise learning opportunities and outcomes for young children. Some of these characteristics are evident only in the work of qualified teachers:

- Higher level qualifications are linked to a positive attitude towards infants and toddlers and their learning (Arnett, 1989; Kowalski, Wyver, Masselos & de Lacey, 2005); and
- Qualified teachers are able to relate theory to practice (Farquhar, 2003).

A study of teaching and learning of infants and toddlers in Aotearoa New Zealand (Dalli, Rockel, Duhn, & Craw, with Doyle, 2011) found that qualified teachers can explain their pedagogy using a mix of implicit and explicit knowledge, based on initial training and later experience. A comment from a participant gives some indication of the value added:

[The ideas from teacher education] give you the basis to build on — and once you have that you start seeing things happen. What I find is that the different ideas helped me make sense/clarified what I think about learning. You see patterns. And also that one size does not fit all — even the needs of the community are different. (p. 4)

### The quality of practice

The UK EPPE study found that qualified teachers make a difference to children's learning because they improve the quality of their practice (Taggart, 2010). A report by Early Childhood Australia Inc. (2009) explains that appropriately qualified staff lift the quality of service provision through:

- The quality of their relationships and interactions with children;
- The appropriateness and intentionality of the experiences they provide for young children;
- The behaviour they practise with their colleagues and model to children; and
- Their interactions and partnerships with parents.

### Interactions with children

Kontos and Wilcox-Herzog (2002) found considerable evidence from research that specialised early childhood education training is related to the quality of teachers' interactions with children. In

the UK EPPE study, more effective interactions with children were demonstrated by qualified early childhood teachers, including their greater use of sustained shared thinking:

The open-ended questioning encouraged children to speculate and to learn by trial and error, and it also often provided an initial stimulus for sustained shared thinking ... while the most highly qualified staff provided the most direct teaching (instruction through demonstration, explanation, questioning, modelling etc.) they were also the most effective in their interactions with the children using the most sustained shared thinking (Siraj-Blatchford, 2010, pp. 157–158).

Another key practice difference related to highly qualified staff (identified by Siraj-Blatchford, 2010) is that they guide rather than try to dominate children's thinking. The results of Degotardi's (2010) study found the quality of infants' play interactions to be associated with staff qualifications.

New Zealand's longitudinal study focused on education, *Competent Children*, supports international findings that qualified teachers interact with children at a higher level than untrained educators. This research confirms that quality interactions by responsive and knowledgeable teachers contribute to higher scores for cognitive and attitudinal competencies (Wylie et al., 2004). A later report from the *Competent Children* project (Wylie & Hodgen, 2007) charted the lasting benefits (11 years later) of early childhood education on children's competence in numeracy, literacy, and logical problem-solving, as well as social skills and attitudes to learning. Implications from this research are that qualified teachers maintain the quality of staff-child interactions which has been shown to boost achievement in learners.

Smith (2011) cites extensive literature that shows qualified teachers are more likely to provide sensitive and responsive learning opportunities for children. Flee (2010) advises that "when teachers are conceptually and contextually in tune with the child, they are able to frame the learning activities the children participate in so that they generate a motive for expanding their play and learning" (p. 96). Smith's (1999) research on children under 2-years attending childcare centres found that infants attending centres with higher numbers of qualified teachers experienced more 'joint attention' (shared attention) episodes. Other researchers emphasise the expertise and skills of qualified staff in terms of developing positive relationships with children (National Scientific Council, 2007).

Norris' (2011) review of the literature identified a range of practices that can be attributed to completion of teacher qualifications. Qualified teachers:

- Demonstrate more congruence between developmentally appropriate beliefs about teaching young children and their own reported and observed practices;
- Hold less authoritarian beliefs about child-rearing, and consequently engage in more sensitive and positive caregiving;
- Have higher proportions of responsive involvement with children;
- Spend more time in activities that promote language development;
- Engage in better adult to child communication;
- Employ more teacher verbalisations with children during free-play;
- Demonstrate strong support of child-initiated learning;
- Are able to state more cognitively focused rationales for the practices they implement; and
- Engage in more play and social interactions with children (pp. 147–149).

Staff qualifications are one of the three factors found to be related to sustained interactions between adults and children and positive outcome measures for children (Love, Kisker, Ross, Raikes, 2005; Thomassen & La Paro, 2009). The other two are low adult-child ratios and a well-articulated curriculum.

## Interactions with unqualified staff

When qualified teachers worked alongside unqualified staff to support them, the practices of unqualified staff were improved (Siraj-Blatchford, 2010).

## Interactions with family/whānau

Family/whānau participation is another of the key indicators of quality ECE, which requires a collaborative partnership between early childhood services and family/whānau to strengthen the learning and development of the children.

In her examination of the link between professional learning and care-based practices, Edwards (2007) made clear reference to teacher qualifications, practice, and working in partnership with families: quality care is an outcome parents expect, children deserve and caregivers constantly aim to provide. Understanding the dimensions of quality care and the impact of quality care on children's development is central to implementing it in practice. Professional learning and the achievement of professional qualifications in early childhood education and care is an important means of supporting caregivers in the complex and important work they conduct with young children and their families on a daily basis.

Carr and Mitchell (2011) posit that qualified teachers set higher standards for their practice. They provide a salutary reminder that the diversity of today's families, and the research evidence that parental expectations are crucial to their children's achievement, means that skilled teachers should be the ones developing responsive and reciprocal relationships with those diverse families/whānau.

In their study of the teacher's role in establishing and maintaining a good parent-teacher relationship, Xu and Gulosino (2006) argue that what early childhood teachers 'do' matters more than their qualifications. These authors suggest that the behavioural aspects of teaching shape the transformation from a 'qualified' teacher to a 'quality' teacher. This finding is in contrast to Early Childhood Australia Inc.'s (2009) study, which argued that the skills of a qualified teacher determine the quality of interactions and partnerships with parents.

## The bicultural model

Aotearoa New Zealand has a unique model of early childhood education. The introduction of *Te Whāriki* as the core curriculum document in 1996 placed an obligation on those responsible for its implementation to weave bicultural perspectives into all aspects of early childhood teaching. Te Tiriti o Waitangi underpins *Te Whāriki*. Regulatory requirements and teacher education include te reo me ona tikanga Māori (the Māori language and culture). Thus, staff in Aotearoa New Zealand should use bicultural practices in their daily activities, both pedagogical and administrative. For both regulatory and ethical reasons, they need to have some understanding of Te Tiriti o Waitangi, and te reo me ona tikanga Māori, in order to implement the bicultural curriculum model. The way to build this understanding is for all early childhood practitioners to participate in teacher education in Aotearoa New Zealand.

Fostering te reo me ona tikanga Māori learning in students, however, can be done poorly. Williams, with Broadley and Lawson Te-Aho (2011), found the implementation of this aspect of the curriculum to be problematic in relation to the two providers in their study, as "There is no definitive set of cultural competencies and measures for the early childhood sector to underpin the implementation of *Te Whāriki*" (p. 37).



This finding by Williams and colleagues (2011) is supported by Ritchie and Rau (2006). They note concerns (from Pākehā teachers) about “moving forward in terms of Tiriti-based commitments despite the expectations of *Te Whāriki* and their own personal convictions about social justice and equity” (Ritchie & Rau, 2006, p. 19).

Meade, Kirikiri, Paratene, and Allan (2011), in a comprehensive study of Māori students enrolled in the Diploma of Teaching (Early Childhood) programme, found that the students appreciated the kaupapa Māori features of the course, including “te reo me ona tikanga Māori being integrated throughout the programme and Māori pedagogy” (p. 11). These Māori qualified teachers are now able to provide leadership in kaupapa Māori practices across a wide range of centres, assisting them to meet key features of *Te Whāriki*.

Few unqualified Pākehā early childhood staff, even those with primary teaching backgrounds, are likely to have specific training in te reo me ona tikanga Māori. Their role in implementing the curriculum is therefore limited.

## Summary

The literature shows that early childhood teacher qualifications are correlated with teacher quality (AACTE, 2004) and, along with quality of provision, are predictors of better child outcomes. Mitchell, Wylie, and Carr (2008) reinforce these findings with evidence from Aotearoa New Zealand that qualified teachers are able to draw on their pedagogical knowledge to interact in meaningful ways, so as to bring about positive gains for children.

Also, qualified teachers differ in their practice from untrained educators in several important respects: Qualified teachers demonstrate their ability to relate theory to practice, and within Aotearoa New Zealand, their ability to promote the bicultural aspects of *Te Whāriki*. Their specialised pedagogical knowledge is also apparent. Interactions with children and the children’s family/whānau are more effective. Overall, the qualified teachers provide evidence of superior quality of practice.





## CHAPTER 4

# The effects of funding changes

### The NZCA surveys on funding

After the government announcements about the change in early childhood qualifications targets and funding associated with the qualifications targets, NZCA began to survey its members about their reactions to and the effects of these policy changes. In addition, this research project studying early childhood teaching in centres with different proportions of qualified teachers was begun. The project included on-line surveys in its methodology. This chapter focuses mainly on those surveys.

### On-line surveys

Two linked on-line surveys of early education and care centres were carried out by NZCA in 2011. In Term 1, NZCA distributed a longer questionnaire by email to its own member centres, focusing on the government funding changes, and including a number of questions about staffing. In Term 2, the Teachers' Work project team at NZCA sent a shorter version of the questionnaire to education and care centres which had not been covered by the NZCA member survey. The shorter version focused heavily on staffing.

Access to the additional centres for the shorter survey was obtained through the Ministry of Education. The Ministry has a database of email addresses for those education and care centres (and other types of services) which have given permission for their email addresses to be shared with interested parties in the education sector. The Ministry granted access to this database to NZCA researchers. The list of centres needed to be 'cleaned', as many email addresses were out of date. As well, many addresses were for umbrella organisations rather than centres, but the NZCA researchers sought respondents who worked in centres. In addition, before the shorter version was sent out in Term 2 to those on the Ministry's list, NZCA centre members were filtered out, so that those centres were not surveyed twice (which would have resulted in double-counting).

A total of 516 education and care centres responded to the two surveys (a 35% return rate). The responding centres represent 21% of the total number of education and care centres throughout the country.

### The responding centres

Responses came from all 13 regions of New Zealand, with over half from Auckland, Canterbury and Wellington. Of the respondents, 57% were community-based, while 44% were privately-owned. The NZCA member respondents were more likely to be community-based (71%) than those from the Ministry list (44%).

The majority of centres (65.5%) were licensed for between 26 and 50 children. The other centres were licensed for 11–25 children (15.4%); 51–75 children (7.2%); and over 75 children (11.4%). Over 60% were operating above the regulated adult–child ratio for both under 2s and over 2s, and only 18% were operating at the ratio. The remaining 22% were more likely to exceed the ratio for children aged over 2.

### Impact of the funding changes (NZCA survey only)

A large majority (83%) of the NZCA members who responded to the first survey said that on 1 February 2011, their funding had decreased; 16% had remained more or less on the same amount of government funding; and less than 1% had had their funding increased. In almost half the centres, the government grant went down by between \$10,000 and \$50,000; in another quarter of the centres, the grant went down by between \$50,000 and \$100,000. The decrease in government grants for the others was said to be less than \$10,000.

As a consequence of the decrease in government grants, around two-thirds of the centres which responded to the survey had raised their fees by at least \$50 per week. However, that was not enough to keep centres financially sound; half the centres reported that they also made other changes. The changes impacting on teachers' work included the following:

- 45% had cut back on employing relievers;
- 23% had reduced the hours of some or all of their teachers;
- 20% had not replaced teachers who had left (reduction by attrition);
- 20% had replaced teachers who had resigned with unqualified staff;
- 11% had restructured to reduce the number of teachers; and
- 5% had restructured to replace some qualified teachers with unqualified staff.

Various other budgetary changes were also described by the centres responding to the NZCA members' survey. The changes with a direct impact on teachers' work included the following:

- 47% had reduced expenditure on play/learning equipment and resources;
- 44% had reduced expenditure on professional development;
- 17% had frozen staff wages;
- 15% had reduced support for educators working to gain a teaching qualification; and
- 8% had changed from staffing above the required ratio to the legal minimum.

### Staff qualifications (both surveys)

Across all the centres surveyed, 50.8% of the teaching staff were qualified and registered and working full-time; 18.3% were registered and part-time; 16.1% were not yet qualified, as they were enrolled in teacher education programmes; and 14.7% were unqualified and not undergoing training. Registered teachers included fully and provisionally registered teachers, and those registered subject to confirmation.

### Age group separation (both surveys)

Those centres that said they were licensed for children from birth to 5 years were asked if they separated the under 2s and over 2s. Almost two-thirds, 64%, were separate and 36% had both age groups together. There was a range of comments, demonstrating a variety of groupings and

varying reasons for these. One centre manager explained her reason for mixing the children in one group:

We think this is the best way in our community to provide quality care and learning. We would really struggle to remain open if they were separated as we would not have enough trained staff. Small rural communities are so different, as we struggle to attract trained staff and so do it ourselves.

Respondents from centres that had separate spaces for under 2s and over 2s described their allocation of staff to each group. In the under 2s' areas, 68% of the staff were qualified and 32% were unqualified. A higher percentage of qualified teachers, 74%, were in the over 2s' area, with 26% unqualified.

## Roles and responsibilities: survey findings

One question common to both surveys looked at the involvement of qualified and/or non-qualified teachers in various aspects of the centre's activities; in other words, it looked at their deployment across a list of roles. (The same question was also asked of case study interviewees, as discussed later.)

In the survey data, one role on the list that stood out as typically being carried out by the qualified teachers was contact with outside agencies, and Group Special Education was frequently named. Higher proportions of centres (20% of respondents or more) expected qualified teachers to take responsibility for: organising events for families; developing/reviewing policies; evaluating the educational programme (also known as self-review); planning the educational programme; assessing children's learning and documenting it in portfolios; settling new children and families/whānau; and working on programme-related activities, with time away from children allocated for this work. It was not possible to ascertain whether these centres were more likely to have high proportions of qualified teachers.

Table 9 shows which teachers carried out which roles, ordered by frequency (higher to lower). It shows that in the majority of centres, all staff, whether qualified or unqualified, worked together to carry out most roles.

TABLE 9: DEPLOYMENT OF ROLES AND RESPONSIBILITIES (SURVEY)

Roles/Responsibilities	Qualified teachers	Unqualified staff	Both qualified and unqualified staff
Meeting with outside agencies	72.4%	3.8%	27.0%
Organising events for families/whānau	35.9%		64.1%
Developing and/or reviewing policies	35.5%		64.5%
Self-reviews/evaluation of the programme	34.5%		65.5%
Planning the educational programme	30.2%		69.8%
Assessing children's learning	27.0%		72.0%
Preparing children's portfolios	25.0%		75.0%
Settling new children and their families/whānau	23.4%		76.6%
Working on non-contact, programme-related activities	22.0%		78.0%
Attending professional development courses/conferences with centre support	21.7%		78.3%
Working on non-contact activities (cleaning/tidying/admin)	18.2%	3.8%	78.1%
Attending events for families/whānau	17.0%		83.0%
Attending staff meetings	15.9%		85.1%
Attending in-centre professional development	14.8%		85.2%

A few managers said that they were responsible for contact with outside agencies, such as the Education Review Office or the Ministry of Education, and noted that they were not qualified and registered teachers. The only category on the list that a few respondents said was the responsibility of unqualified educators was cleaning, tidying and some administrative tasks.

## Benefits of deployment patterns

Respondents were asked about the benefits of their particular deployment patterns, and their comments were subjected to thematic analysis. Four main themes emerged: spreading expertise and a team approach, and alternatively reserving roles for qualified teachers so they can provide professional guidance and apply theory to practice.

TABLE 10: BENEFITS OF DEPLOYMENT OF QUALIFIED TEACHERS AND UNQUALIFIED STAFF

Benefits of deployment	% of respondents mentioning each benefit
<i>Rationale for all staff doing all roles:</i> Spreading expertise, maintaining a balance of qualified and unqualified staff for children in areas	48%
A team approach	8%
<i>Rationale for reserving some roles for qualified teachers:</i> Qualified teachers mentor/provide professional guidance and work as role models to set the culture and benchmarks for the centre	27%
Qualified teachers maintain high quality programmes applying theory to practice and have an understanding of <i>Te Whāriki</i>	16%

In explaining why some roles were reserved for qualified teachers, it was apparent that some of the centres were explaining why they chose to maintain a staff profile with 100% qualified teachers, for example:

We operate at 100% fully registered, so our unregistered teacher is surplus [supernumerary] to our needs.

The major benefits are about professionalism.

Programmes are exciting and tailored to needs and interests of the children. Registered teachers tend to be more proactive in leading the way.

In explaining the benefits of ways in which centres with fewer qualified teachers deploy these teachers, some managers indicated the additional time they thought they needed to put into deploying staff:

We have a good even spread over our three age groups — as in an even spread of those in-training, so there is not too much disruption for children as well as for registered teachers being able to share the workload of mentoring others.

We ensure that a registered teacher is paired with a newly-qualified teacher or any unqualified reliever throughout the day.

Our registered teachers are on the floor when there are high numbers of children here, allowing guidance and support for all staff and ensuring families and children are all supported. When numbers drop at 3.30pm, we go to equal numbers of registered and unregistered staff so all can do their non-contact time.

The respondents from centres with fewer qualified teachers often explained the deployment of their qualified teachers in terms of spreading expertise:

Knowledgeable and well-trained teachers lead the educational programme and the untrained staff.

They [registered teachers] are evenly distributed in the teaching teams so each team has a source of knowledge and strength.

There is a balance of qualified/unqualified teachers interacting with children. All teachers have responsibility for children and running the centre.

New Zealand's egalitarian values came through in a theme about team members being equal:

It's all about team work — the distinction [between categories of staff] is not obvious.

Both registered and unregistered staff work equally beside each other.

We work as a team to share strengths and capabilities.

Other benefits from centres' decisions about deployment were described as 'all teaching staff were available to parents', and 'teachers could adapt to the needs of the children'.

## Support and mentoring of unqualified educators

An additional role identified for qualified teachers was support for student teachers doing a practicum, for team members who were enrolled in a field-based teacher education programme, or for team members who had elected not to become a qualified teacher.

It is part of the leadership roles that registered teachers hold. It is also an unwritten expectation of registered staff to be available to support and mentor.

Our team culture is to support one another, trained or untrained! Also we have our registered teachers who are Associate Teachers that can support teachers in training.

The survey asked: Are qualified and registered teachers explicitly asked to mentor/supervise unqualified educators? Over two thirds replied that they did deploy their qualified teachers as mentors and/or supervisors of unqualified staff, while 27% did not expect their qualified teachers to perform this role. Instead, the latter centres either provided induction for new staff, or employed unqualified staff only as relievers. Four percent stated that their unqualified staff had been in the centre for a long time and were experienced, or that they had other qualifications, such as primary teacher qualifications.

Survey respondents were asked to describe how any unqualified staff were supervised:

- 44% said all registered staff were supervising others, using either a formal or informal arrangement;
- 18% said supervision was provided by the head teacher, assistant head teacher, or a team leader; and
- 18% said they had a buddy system in place, which carried through to planning meetings.

Types of support included professional development during staff meetings on topics determined by observation; coaching sessions and appraisals; checking the assessment records of children's learning (e.g., portfolios); self-reviews and curriculum implementation; shared discussions of expectations; observation with feedback and support; orientation to routines; and workshops.

Check children's assessments/portfolios, self-reviews and implementation of the curriculum.

Directly through regular coaching sessions, appraisals, day to day qualified staff being responsible.

A buddy system is in place for registered teachers to buddy up with an unregistered teacher to help mentor them, and to advise and guide.

Always have someone qualified supporting, reading documentation, planning alongside unqualified and in-training teachers.

## Mentoring of provisionally registered teachers

A related additional responsibility for qualified and registered teachers is mentoring any provisionally registered teachers. This arrangement can apply in centres in any funding category, unless the centre manager contracts an outsider to provide the mentoring. It is not always done individually, as this comment attests:

We work as a team, meet as a team, set goals and support each other on the floor and in meeting the teaching criteria commitments as a team, including observations, comments and goal setting. Any registering teacher can request the assistance of any registered teacher for any particular field of assessment, as everyone has strengths and interests that can empower. All our registered teachers attended the new criteria workshops for mentoring etc. as a team. Our mentoring programme has been designed by them for themselves and those registering.

## Roles and responsibilities: Case study centre findings

The 10 case study centres were given the same list of roles and responsibilities as in the on-line surveys, and interviewees were asked to tell the researchers who generally carried these out. Team responsibility was a common answer; for example:

Our unqualified teachers have come through the HIPPY programme as parent tutors, as parents in the centre, support staff and now have become teachers in training — they are regarded as part of the team and take part fully in most aspects of the programme.

Table 11 is a compilation of deployment data from the 10 case studies. Given that in centres with 100% qualified teachers there were few unqualified adults, and they were generally student teachers or supernumerary staff, the pattern for this group of case study centres was to be expected. The data for centres with 50–79% qualified teachers are of greater interest. For example, for ‘Welcoming visitors/families’, all five centres with 50–79% qualified teachers said that both qualified and unqualified staff carried out this task. For ‘Meeting with outside agencies’, all five of these centres ticked the ‘qualified’ box, and two of them also ticked the ‘both’ box.

TABLE 11: DEPLOYMENT OF STAFF IN CASE STUDY CENTRES  
WITH DIFFERENT LEVELS OF QUALIFIED TEACHERS

Role/Responsibility	100% qualified teachers			50–79% qualified teachers		
	Qualified	Unqualified	Both	Qualified	Unqualified	Both
Welcoming visitors/families	4		1			5
Settling new children and their families/whānau	3		2	1		4
Planning educational programmes and writing the planning down	4		1			5
Assessing children's learning	4		1	1		4
Preparing children's portfolios	4		1	1		4
Self-reviews/evaluations of the programme	4		1	1		4
Attending staff meetings	2		3			5
Working on non-contact programme-related activities	3		2	1		4
Working on non-contact activities (cleaning/admin/tidying)	2	1	2			5
Meeting with outside agencies	4		1	3		2
Attending professional development courses/conferences with centre support	3		2			5
Attending in-centre professional development	2		3			5
Organising events for families/whānau	3		2	1		4
Attending events for parents/whānau	3		2			5
Special responsibilities (Developing and implementing an IEP for child with additional needs)	4		1	3		2



It is evident that many of the centres with 50–79% qualified teachers took a ‘team responsibility’ approach. This approach was explained in terms of making everyone responsible, sharing the load, giving children access to all types of teachers, and allowing the unqualified and/or in-training staff to learn through carrying out teaching responsibility with guidance from qualified teachers. However, a few roles were specified for qualified teachers only, and sometimes managers/supervisors only. These areas included meeting with outside agencies, and special education responsibilities, such as developing and implementing Individual Education Plans (IEPs) for children with additional needs. Comments indicated that facilitating professional development at staff meetings was a responsibility that fell on the shoulders of the qualified teachers.

## Comparison of on-line survey and case study data

As the wording for the question in the on-line survey to ascertain qualification profiles was different from the definitions for centres in the funding bands used in the case studies, we were not confident that tabular comparisons between the two data sets would be very reliable. Thus we see it as appropriate to comment only in very general terms. It appears that in both the centres responding to the on-line surveys and the case study centres, the deployment of qualified teachers and unqualified staff was similar in centres with 50–79% qualified teachers. The pattern in both sets of data appears to be a team approach, with a few responsibilities reserved for qualified teachers.

## Changes ahead for the deployment of qualified and registered teachers

The final question in the on-line surveys was: What do you think you are likely to change later this year about the way you deploy your qualified and registered teachers?

A total of 45% of the NZCA survey respondents said they would make no changes. Most of them had already made changes to adapt to the decrease in government funding. A smaller proportion (33%) of respondents from centres on the Ministry of Education list said that they would not make any changes. Explanations for this position ranged from stating a strong commitment to maintaining a high proportion of qualified and registered teachers, to describing satisfaction with current staff and how they worked, to saying the centre had undergone a restructuring in late 2010 and managers or owners had no wish to upset staff further.

Some reasons given for maintaining high proportions of qualified teachers, even when the cost was high, were:

It is important to us to offer the best team to our tamariki and not [to] undermine the early childhood profession by saying we don’t need qualified teachers.

We will be employing qualified teachers as we had two in-training before and they put a lot of pressure on our qualified teachers.

Some said they were likely to increase the number of qualified teachers. The reasons given included:

- staff in-training graduating;
- needing to achieve the criteria for the 80% funding rate; and
- wanting to improve the number of qualified teachers working with groups such as infants and toddlers.



Twelve percent were unsure about any change; many of these said that the rolls were fluctuating and they would need to review staffing if roll numbers dropped, or if there was no attrition of staff. A similar percentage said that they (i.e., the head teachers/managers) were devolving more administration responsibilities to teachers, so that the manager could be in the adult-child ratio more often to reduce costs. Five percent planned to replace qualified teachers with unqualified staff, often through attrition.

One centre said, 'Our problem is we have too many qualified teachers and this affects our viability.'

Responses to these sorts of pressures were varied.

Maximising the roll structure and occupancy, and/or going for a bigger licence size, accepting that there will be more pressure on teachers.

Changing the deployment of staff so there is 80% registered in all areas.

Allocating less time for staff non-contact activities.

Lowering expenditure on professional development, and meetings including parent meetings.

Taking fewer student teachers who need qualified teacher time; and providing guidance and support sessions for provisionally registered teachers in-house in groups instead of contracting an outsider.

Giving less support for part timers and unqualified educators.

Implementing a wage freeze or a reduction in qualified teacher hours and pay.

Making some staff redundant.

Increasing fees (again).

Employing only unqualified relievers and part-timers.

Reviewing the policy of supporting registration for all teachers.

Reviewing the centre's budget — in particular, salary and wage rates.

If wages and conditions were to deteriorate, some predicted that quality would probably decline.

Quality will decrease. Teachers will turn to a work-to-pay basis because the compliance work will take a toll on the qualified [teachers] on the floor.

We will lose this quality interaction for all. What we do see changing for us in the future is when our in-training staff become qualified we will struggle to offer them the wage they will deserve if the funding brackets are not [linked to] the low ratios we have. If this is not going to be possible due to projecting big financial losses, we will have to make some staff redundant.

Larger, multi-licence centres operate more complex deployment strategies.

The most difficult part for us is having to share our registered teachers with other centres so they can receive 80% funding. In return we get unregistered staff who have little experience. Very frustrating.

Currently we are supporting other centres so they don't have to use agencies and we replace our registered teacher with an in-training reliever.

## Conclusion

The on-line surveys provided useful contextual information from a wide array of centres about patterns of employment and deployment of staff. The case study results were similar to the on-line surveys. Managers of centres with fewer qualified teachers were giving considerable thought to the way they group their staff teams, and juggling the needs of different interest groups. Managers of centres with high percentages of qualified and registered teachers had different complex issues to deal with, as a consequence of the funding reductions from 1 February 2011.

## CHAPTER 5

# Centre quality ratings

This chapter reports the findings on the quality of early childhood education in the case study centres. Quality was rated using the *NZCER ECE Quality Rating Scale* (c2003). This instrument was developed for New Zealand early childhood education research purposes, and was introduced in Chapter 2.

## NZCER ECE Quality Rating Scale

This instrument has been used in studies evaluating early childhood centre quality, most recently in the evaluation of the implementation of *Pathways to the Future/Ngā Huarahi Arataki* (Mitchell et al., 2011).

The rating process takes more than half a day, and is repeated on another day to gain a valid picture of the centre. There is a cover page for capturing who is present and any special circumstance on the day. At least 30 to 45 minutes after opening time, the researcher records the number of qualified and unqualified adults responsible for children and the number of children present.

There have been on-going refinements, as the instrument itself is evaluated after each study. For the present study, NZCER's statistician advised that some variables had not served to discriminate clearly between services, or had been developed for so-called parent-led services, and were thus not appropriate for our study of teacher-led education and care centres. As a consequence of this advice, eight variables were not used in the 10 case study centres.

The NZCER ECE rating scales are clustered under the following headings:

- Adult–child interactions;
- Adult–adult interactions;
- Child–child interactions;
- Education programme;
- Resources.

The findings relating to the Education programme are presented in three clusters of variables in this chapter, named as follows: Inclusion practices; Child engagement in the educational programmes; and Opportunities for children to work with symbols.

For most variables, the *NZCER ECE Quality Rating Scale* has marking rubrics that embrace the care and education of children aged under 2. Our research team decided to develop and add three variables specifically focused on this age group, drawn from statements in *Te Whāriki* (Ministry of Education, 1996, pp. 22–24). They are:

- An adult is consistently responsible for and available to each infant;

- Adults demonstrate approaches which accommodate toddlers' spontaneity and whims at a pace that encourages them to try to do things for themselves; and
- Adults encourage toddlers' cognitive skills and language development.

## Use of the NZCER ECE Quality Rating Scale in the Teachers' Work project

The rating scale for each of the 30 variables, from 5 (highest) to 1 (lowest), read as follows:

- 5: This description was very frequently seen. What is described happened all the time during the visit;
- 4: This description is much like this centre. What is described happened often during the visit;
- 3: This description is somewhat like this centre. What is described sometimes happened during the visit;
- 2: This description is very little like this centre. What is described hardly ever happened during the visit;
- 1: This description is not at all like this centre. What is described never happened during the visit.

The NZCER instrument was used by each researcher on two days in each case study centre. She observed and took notes in relation to the variables over several hours. Then she left the centre premises and, within 30 minutes of her departure, did the ratings of the centre, variable by variable, on the 5-point scales.

In the tables that follow, the left hand column shows the range of ratings (usually from 4.5 to 1.5, as it was impossible to achieve a perfect score of 5). The centre's scores for the two days were averaged, which is why there are scores such as 3.5. Often the researcher rated the centre the same for each variable on both days.

As stated in Chapter 2, inter-rater reliability checks were carried out. The researcher who had previously used the NZCER instrument in three other research projects provided the bench-mark ratings.

## Quality ratings findings

The numbers of centres are too low to apply tests of significance. However, patterns can be seen visually in the tables. Generally, centres with 100% qualified staff had more positive ratings than centres with 50–79% qualified staff. Sometimes the two categories of centres were similar; e.g., 'Adults model — and encourage children to use — positive guidance'. The data are provided in the tables below.

The adult–child variables addressed in the instrument are summarised below:

- Adults are responsive to children;
- Adults model — and encourage children to use — positive reinforcement;
- Adults model/guide children within the context of centre activities;
- Adults ask open-ended questions that encourage children to choose their own answers;
- Adults encourage/foster language development;
- Adults participate with children in activities and play; and
- Adults add complexity and challenge for children.

TABLE 12: ADULT CHILD INTERACTIONS BY CENTRE AND LEVELS OF QUALIFIED STAFF

Rating	Adults are responsive to children		Adults model — and encourage children to use — positive guidance		Adults model and guide children		Adults ask open questions that encourage children to choose own answers		Adults encourage/ foster children's language development		Adults participate in children's activities and play		Adults add complexity and challenge for children	
	100%	50+%	100%	50+%	100%	50+%	100%	50+%	100%	50+%	100%	50+%	100%	50+%
Staff quals														
4.5					1									
4	3		2		2		2		2		1			
3.5	2	2	2	2	2	1	1		2		2	1	1	1
3		2	1	2		2	2		1	2	2	1	3	
2.5		1		1		2		3		3		2	1	1
2								2				1		2
1.5														1

Note: 3 is the mid-point, and equates with 'sometimes'.

Table 12 summarises adult and child interactions by category of qualified staff. Researchers rated the nature and extent of responsive interactions between centre staff and children. The research literature (see Chapter 3) indicates that teaching competence in these areas contributes significantly to the effectiveness of early childhood education (Degotardi, 2010; Early, Bryant, Pianta, Clifford, Burchinal, Ritchie, Howes, & Barbarin, 2006; Early, Maxwell, Burchinal, Bender, Ebanks, Henry, & Vandergrift, 2007; Siraj-Blatchford, 2010).

Over all five education and centres with 100% qualified teachers, the staff were consistently interacting with children at higher levels than staff in the five centres with 50–79% qualified teachers. For example, in all of the centres with 100% qualified teachers, staff were said to be 'responsive to children' 'frequently/very much' (see column 1). The majority of the centres with 50–79% qualified teachers were rated as being 'sometimes' responsive to children. Teachers in one centre in the 50–79% group stood out above other centres in that category for 'Participating in children's play' and 'Adding complexity'.

In relation to 'Adults ask open-ended questions that encourage children to choose their own answers', in the five case study centres with 100% qualified staff, the researchers observed teachers asking open-ended questions often. In the centres with 50–79% qualified staff, staff sometimes or hardly ever asked open-ended questions.

The two adult–adult variables are summarised as follows:

- teaching staff interact respectfully and positively with each other; and
- the adults work as a team to provide the education programme.

TABLE 13: ADULT–ADULT INTERACTIONS BY LEVELS OF QUALIFIED STAFF

Ratings	Adults interact respectfully and positively with each other		Adults work as a team	
	100%	50–79%	100%	50–79%
Staff quals				
4.5	3		3	
4	2	2	1	
3.5		1		2
3		1	1	2
2.5		1		1
2				
1.5				

Table 13 summarises researchers' ratings of adult–adult interactions. The researchers observed positive and/or respectful adult interactions regularly or often (4.5 or 4.0) in the five centres with 100% qualified staff. In the five centres with fewer qualified staff, ratings covered a wider range, from 4.0 (often) to a low 2.5 ('sometimes/hardly ever happened').

For the variable 'Adults work as a team', the marking rubric for a rating of 5, 'happening all the time', reads:

Adults participate confidently in daily routines. Adults collaborate over programme provision. Adults are acknowledged for their different contributions. Adults actively listen to one another. Adults resolve issues together. Adults support and look out for each other in the learning environment. Adults respond to one another's situations. Adults enjoy one another's company.

There was a wide range of ratings for this variable, again with a positive skew for centres with 100% qualified teachers. Three centres with 100% qualified staff were scored highly (4.5, very much alike). Most others had a rating in the mid-range.

Low ratings were given in centres where there was little communication between adults, and gaps were evident in adults' knowledge about how things work in the centre. In these settings, adults were often observed alone, with no contact with each other.

The child–child variables were:

- children support and cooperate with each other in language and actions;
- children co-construct learning with other children; and
- children display emergent leadership/leadership skills.

TABLE 14: CHILD–CHILD INTERACTIONS BY LEVELS OF QUALIFIED STAFF

Ratings	Children support with each in language and actions		Children co-construct learning with other children		Children display emergent/ leadership skills	
	100%	50+%	100%	50+%	100%	50+%
4.5			1			
4	2	1	1			
3.5	2	1	1	1		
3	1	1	2	3	2	2
2.5		2		1	1	
2					1	2
1.5					1	1

Table 14 summarises the researchers' ratings of child–child interactions. Two different patterns in the ratings are evident. First, for 'Children supporting each other in language development and actions', and 'Children co-construct learning' variables, the ratings for centres in the 100% qualified teachers' category were skewed toward 'happened often'. In one centre with 50–79% qualified teachers the same phenomena were also observed often on one or both days.

In relation to 'Children display emergent leadership skills', the marking rubric for a score of 1 reads, 'Children are not offered opportunities to act in a leadership role.' To score a 5, 'very much like this centre happening all the time', the marking rubric reads:

Children lead familiar activities with confidence. Children use their initiative to look out for, guide or support other children (tuakana/teina, manaakitanga). Children contribute ideas

in a learning experience. Children act as advocates for others. Children display respect for other children.... Mokopuna lead karakia, mihimihi or waiata. Toddlers initiate karakia before kai.

The ratings for this variable were consistently low across all 10 centres. Ratings ranged from the 'somewhat like'/'sometimes' (3.0) to 'very little like'/'never happened' (1.5).

TABLE 15: INCLUSION PRACTICES BY LEVELS OF QUALIFIED STAFF

Ratings Staff quals	Tikanga me te reo Māori evident		Non sex-stereo-typed play		Adults accept and represent other cultures		Evidence of inclusion	
	100%	50+%	100%	50+%	100%	50+%	100%	50+%
4.5								
4			1				3	
3.5		2		1			1	1
3	1		4	3	1	1	1	1
2.5	1	3			2			2
2	3			1	2	4		1
1.5								

Table 15 summarises researchers' ratings on items focused on inclusion practices at the centres, such as evidence of te reo Māori and non sex-stereotyping play. Centres in the 50–79% qualified teachers' category were the only ones to highlight a commitment to inclusive practices when talking about their philosophy during additional data gathering via the interviews (see Chapter 2).

One centre with 50–79% qualified staff, which turned out to be an outlier, was rated above the mid-point on two variables: 'Non-sex-stereotyping play' and 'Evidence of inclusion'. The researcher's notes about her visits confirm that most teachers in that centre demonstrated inclusive practice.

On 'Evidence of tikanga me te reo Māori', the centres with 50–79% qualified teachers did better than most centres with 100% qualified teachers. One explanation for this is that the head teacher in three of the five centres with 50–79% qualified teachers was Māori. As well, the data about centre philosophies in the interviews in the centres with fewer qualified teachers included more expressions of pride by staff in their commitment to biculturalism. A recent study by Williams, Broadley and Lawson Te-Aho (2012) of the development of bicultural competence in early childhood education shows that this is not usual. They report, "There is some concern among research participants that graduate and registered teachers may not be fully equipped to meet the Graduating Teaching Standards" (p.11).

All case study centres rated consistently low on 'Acceptance and representation of other cultures'. Education Review Office (2012), in a report evaluating partnerships between services and whānau Māori, commented:

There needs to be considerable improvement in the way most services work with whānau Māori. ... Professional development is needed for most early childhood educators so that they can build partnerships with whānau, give full effect to *Te Whāriki* and help Māori children reach their potential. (p.2)

The variable in the rating instrument covers all non Pākehā cultures. Our sample descriptors showed that nearly one third of the staff sample in the 100% centres and nearly one quarter of the staff sample in centres with fewer qualified teachers stated that they were neither Māori nor Pākehā.



TABLE 16: CHILD ENGAGEMENT IN THE EDUCATION PROGRAMME BY LEVELS OF QUALIFIED STAFF

Ratings	Children show purpose in learning		Children are allowed to complete activities	
	100%	50+%	100%	50+%
4.5				
4	5	1	4	1
3.5				
3			1	1
2.5		3		2
2		1		1
1.5				

Table 16 summarises ratings for child engagement in the education programme by levels of qualified staff. The pattern noted in Tables 12–14 prevails for education programme variables also: more centres with 100% qualified staff than centres with 50–79% qualified staff rated highly. Researchers recorded that children in centres with 100% qualified staff were very engaged in learning.

The higher rating for one centre on these scales is noteworthy, compared with the other centres in the 50–79% qualified teachers' category, as its scores made it an outlier. There, the researcher rated the staff as often engaging in good practice in relation to both 'Children showing purpose in learning', and 'Children being allowed to complete activities'. For the other centres in this category, the highest top rating was 'sometimes/somewhat like' (3.0).

TABLE 17: OPPORTUNITIES FOR CHILDREN TO WORK WITH SYMBOL SYSTEMS BY LEVELS OF QUALIFIED STAFF

Ratings	Children explore mathematics		Children engage in creative play		Stories are read or told		Children's artwork is displayed		Print-saturated rooms		Children have opportunity to write	
	100%	50+%	100%	50+%	100%	50+%	100%	50+%	100%	50+%	100%	50+%
4.5												
4			1						1			
3.5	1	1	2	1	2		1		3		1	
3		2	1	1	2	2	4	3	1	2	3	1
2.5	3	2	1	2	1	1		1			1	
2	1			1		2		1		2		1
1.5										1		3

Table 17 summarises opportunities for children to engage with symbol systems by levels of qualified staff. Time was noticeably less likely to be given to learning symbol systems in centres with 50–79% qualified teachers. It is of concern for the children in these centres, and for their communities, that four of the centres with fewer qualified teachers rarely provided children with the opportunity to write. Nor were print displays visible within the environment. In two centres in this category, story reading — a strong predictor of later school success — was seldom evident. These staff members were the ones who mentioned providing a fun, happy and safe environment for children during the interview discussion of their philosophy. Having a happy environment is important for children's well-being and sense of belonging, but so too is providing emergent literacy experiences. The connection between an emphasis on socioemotional development and the extent of teacher education provide a possible explanation for the paucity of attention given to reading and writing literacies.

TABLE 18: RESOURCES BY LEVELS OF QUALIFIED STAFF

Ratings	Enough resources to minimise competition		Space for children to explore the physical world		Provision for parents to stay	
	100%	50+%	100%	50+%	100%	50+%
4.5	3		3		2	
4	1	1	1	1	1	2
3.5	1	1				
3		3	1	4	2	1
2.5						1
2						1
1.5						

Table 18 summarises the level of resources in the case study centres, including space for physical activities and provision for parents. For this variable, researchers rated a majority of centres with 100% qualified staff as 4.5 (plentiful resources). In contrast, the majority of centres with 50–79% qualified staff were rated as 3.0 ('somewhat like'). Similar contrasts are evident in relation to space for physical activities and provision for parents; for example, four of the centres with 50–79% qualified teachers were rated as 3.0 on outdoor space. The human capital of the families in these centres was apparently less abundant too. In Chapter 2, we noted that more of the mothers in the sample from centres with 100% qualified teachers had a degree. Do these findings about resources warrant wider research? In other words, is the association between fewer physical resources and fewer qualified teachers in our selected centres a widespread phenomenon?

All 10 centres enrolled infants and toddlers as well as children aged over-2-years. Our project methodology was designed to include teachers' work with infants and toddlers, as well as with young children. Table 19 summarises infant and toddler quality practices by levels of qualified staff.

TABLE 19: INFANT AND TODDLER PRACTICES BY LEVELS OF QUALIFIED STAFF

Ratings	A consistent responsive adult for each infant		Teachers accommodate toddler spontaneity/encourage trying		Teachers encourage toddlers' cognitive/language development	
	100%	50+%	100%	50+%	100%	50+%
4.5	1		1		1	
4	1		2			
3.5	1	1		1	2	1
3	1	1	1	1		2
2.5	1	1	1		2	
2		1		3		2
1.5						
1		1				

The majority of the centres with 100% qualified teachers were observed to frequently follow the practices recommended for infants and toddlers in *Te Whāriki*. In the data on philosophies from the interviews, several head teachers from centres with 100% qualified teachers spoke about the influence of Gerber's theory (e.g., Gerber, 1998, 2005; Gerber & Johnson, 1998) and/or Pikler's research (Pikler, 1971, 1994; Tardos, 2007), and/or attachment-based theories, on their philosophy and practice (Bary, Deans, Charlton, Hullett, Martin, Moana, Waugh, Jordan, & Scrivens, 2008). They were committed to high quality, relationship-based practice, and drew on theory and research to guide their work with infants and toddlers. Research has shown that "the quality of interactions increases as the interaction partners spend more time together" (Gevers Deynoot-Schaub & Riksen-Walraven, 2008, p.182).

A different picture emerged for centres with fewer qualified teachers. With one exception, these centres were rated, at best, as 'sometimes/somewhat like' for the infant and toddler variables; and three of these centres were rated as 'very little like/hardly ever' on each of these variables. One centre was rated as never 'Having a consistent responsive adult for each infant' on the observation days.

These findings are of particular concern, because of the significance of centre practices for the well-being of infants and toddlers, and the development of their identity and language. *Te Whāriki* requires provision of opportunities for this age group to form a bond with staff members. Responsive caregiving is known to be a key element of quality. So too are primary caregiving pedagogies, according to the inquiry by the (New Zealand) Office of the Children's Commissioner (Carroll-Lind & Angus, 2011), yet the inquiry found many centres do not use such a system. It is critical that responsive interactions occur in ways that support infants and toddlers to form healthy attachments (Dalli, Kibble, Cairns-Cowan, Corrigan & McBride, 2009; Dalli, White, Rockel, & Duhn, with Buchanan, Davidson, Ganly, Kus & Wang, 2010; Dalli, Rockel, Duhn & Craw, with Doyle, 2011; Gallagher & Mayer, 2008; Lally & Mangione, 2006).

## Mean scores

The ratings were turned into mean scores for the clusters of variables. Table 20 shows this data, and compares the case studies with the different levels of qualifications. It serves to give an overview of the quality of the two categories of centres, with 5.00 the most positive rating ('always like'), 3.00 the mid-point ('sometimes/somewhat like') and 1.00 the lowest 'not at all like' rating.

TABLE 20: RATINGS MEANS BY LEVELS OF QUALIFICATIONS

Scales	100% qualified	50–79% qualified
Adult–child interactions cluster	3.69	2.86
Adult variables' cluster	4.40	3.27
Child–child interactions cluster	3.23	2.93
Resources cluster	4.20	3.22
Education programme clusters		
• inclusive practices	2.98	2.88
• child engagement	4.10	2.97
• opportunity to work with symbol systems	3.10	2.56

The smallest difference is in relation to inclusive practices.

A difference of one percentage point is notable when analysing 5-point scales. This amount of difference between centres with 100% qualified teachers and centres with fewer qualified teachers can be seen in relation to four clusters: adult–child interactions, adult variables, resources, and child engagement.

This shows up differences in the ways that practitioners work with children and with each other, and the resources they have to work with. There are consequences for the children in terms of opportunities to engage purposefully, and for longer periods of time, with learning experiences. The children's experiences will be more fully illuminated in Chapter 8 focused on observations of target children and their interactions with the educators.

## Comparative picture

The NZCER ECE Quality Rating Scale was used by the research team studying the trends in the implementation of the 10 year plan, *Pathways to the Future/Ngā Huarahi Arataki* (Mitchell et al., 2011) in 2004, 2006 and 2009. This evaluation took place in eight anonymous locations and in 32 services, 12 of which were education and care centres. Our research team asked NZCER for the summary data relating to these 12 centres to compare similarities and differences. Table 21 shows the percentages of centres that had been rated as ‘often’ or ‘very frequently’ or ‘always’ like the descriptions at the positive ends of the scales. Note that there is no information about the staff qualifications profile of the 12 centres in the 10 year plan evaluation study.

TABLE 21: COMPARISON OF POSITIVE RATINGS (3.5–5.0) ON NZCER ECE QUALITY RATINGS SCALE FOR TEACHERS’ WORK PROJECT AND 10 YEAR PLAN EVALUATION STUDY\*

Scales	Teachers’ Work Project n = 10	10 year plan implementation evaluation n = 12
Adult–child interactions cluster	45.7%	46.4%
Adult–adult variables’ cluster	70.0%	79.2%
Child–child interactions cluster	50.0%	33.3%
Resources cluster	56.7%	55.6%
Education programme clusters		
• inclusive practices	22.5%	43.8%
• child engagement	65.0%	62.5%
• opportunity to work with symbol systems	23.3%	30.6%

\* The cluster of variables focused on infants and toddlers could not be compared.

The percentage of centres rated positively for the clusters of variables was similar in the two studies in relation to adult–child interactions, resources and child engagement. This is reassuring for the centres in this research. For child–child interactions, half of the centres in our project were rated at the higher end of the scale, compared with a third of the centres in the 10 year plan evaluation study.

However, a larger proportion of centres in the 10 year plan evaluation study were rated more positively in relation to adult–adult variables, inclusive practices and opportunities for children to work with symbol systems. We wonder whether this difference could be a consequence of (a) increased proportions of qualified teachers in the centres in the 10 year evaluation study, and (b) the centre staff being able to see ratings results for 2004 and 2006, and taking some action to improve. In our research for the variable, ‘Acceptance of cultures of children at the centre: the ethnicity of children at the centre is taken into account and their cultures represented’, no centre rated higher than ‘somewhat like’; this was a notable reason for the percentage for that cluster of variables to do with inclusion being a low 22.5%.

## Conclusion

The proportions of qualified staff matter for the quality of education and care services. While the sample size of 10 centres is too small to run tests of significance, it is possible to see the clear skew toward more positive ratings for centres with 100% qualified teachers across all tables.

This is summarised in Table 21, which shows a consistent pattern for all clusters of variables in the quality scores for centres with 100% qualified teachers. However, these centres' scores on individual variables were not always better. Their commitment to te reo me ona tikanga Māori was less evident than in centres with 50–79% qualified teachers.

No centre rated positively in relation to accepting and representing the diverse cultures of the children in their centre. When our research data was compared with research data from another study, gathered using the same instrument, the 10 case study centres did poorly on this variable, compared with the very positive rating for two of the 12 centres in the 10 year plan evaluation.

## CHAPTER 6

# Planning and centre–parent participation

### Introduction

The innovative early childhood education curriculum in Aotearoa New Zealand, *Te Whāriki*, and the accompanying assessment exemplars (*Kei Tua o Te Pae*) have strong links to sociocultural theory (Anning, Cullen, & Fler, 2004; Cullen, 2004; Ministry of Education, 2009a). Book 16 of *Kei Tua o Te Pae* (Ministry of Education, 2009b) states:

... When family members read stories about practices that involve their child in early childhood settings, they will often be prompted to describe related experiences going on within the family context... Competence is about access and apprenticeship into institutions and texts. It also depends on how much the knowledge skills, and interests children acquire from their families and communities are recognised and valued by educators within early childhood settings. Assessment practices will include making connections with family and whānau. (p. 7)

Rogoff's (1998) 'transformation of participation' construct is used to anchor this chapter's discussion of teacher and parent<sup>5</sup> participation. Rogoff coined the phrase to describe human development as "a process of people's changing participation in sociocultural activities of their communities" (2003, p.52). Fler and Robbins (2006) explain this sociocultural process as a way for people to develop their thinking and behaving through "involvement in shared endeavours, changing to be engaged in the situation at hand in ways that contribute both to the on-going activity and to the person's preparation for future involvement in similar events or activities" (p.31). They emphasise the importance of the *process* of participation in those community activities to the transformation. This sociocultural explanation about how people develop through their participation in community activities is part of the rationale for including a question about families/whānau participation.

Good teacher–parent communication is vital for parent participation. Parent participation fulfils many purposes: child and parent rights (Rinaldi, 2006; Whalley et al., 2001); participatory democracy, social inclusion of children and families, and sustaining cultures and languages (Moss, 2012); and enhancing children's learning outcomes (Sylva et al., 2010) and children's and parents' lives (Bronfenbrenner, 1979; Whalley et al., 2001). *Te Whāriki* recognises these values and sets out an expectation that a significant role of the early childhood teacher is to connect with family and whānau about their child's interests and learning. The introduction to the Family and Community/Whānau Tangata principle in *Te Whāriki* states:

The wider world of family and community is an integral part of the early childhood curriculum.  
... Children's learning and development are fostered if ... there is strong connection and

5 The word 'parents' refers to those who are the caregivers of the child; they could be grandparents, whānau, and so on.

consistency among all aspects of the child's world. The curriculum builds on what children bring to it and makes links with the everyday activities and special events of families, whānau, local communities and cultures. ... Culturally appropriate ways of communicating should be fostered, and participation in the early childhood education programme by whānau, parents, extended family, and elders in the community should be encouraged.

New Zealand is the home of Māori language and culture: curriculum in early childhood settings should promote te reo and ngā tikanga Māori, making them visible and affirming their value for children from all cultural backgrounds. Adults working with children ... should respect the aspirations of parents and families for their children. (Ministry of Education, 1996, p. 42.)

The last paragraph acknowledges the importance of Te Tiriti o Waitangi in education.

This chapter focuses on our third research question: 'What features of the two types of education and care centres have positive (or negative) effects on family participation?' The researchers' interest was not in whether parents did or did not enrol their child in a centre, and why. Rather, our interest has been in parents' participation, in terms of the family and community curriculum principle. We know that teachers and parents talking about their child's learning can have a powerful impact (see Whalley's Pen Green Loop, 2001, p. 140; see also Athey, 2007; Melhuish, 2010; Siraj-Blatchford, 2010).

We explored teachers' work in implementing the principle of *Te Whāriki* concerned with families and community. How are early childhood staff putting this principle into action for parents and whānau? The chapter draws on interview data from parents of the target children and from the teachers in the case study centres who were interviewed face to face. Each researcher also reviewed the target children's portfolios.

The interviews with parents were short, covering: their aspirations for their child by the time s/he finished early childhood education; the child's current interests; and how parents and teachers communicated about interests and learning which they recognised at home and in the centre, as well as how they shared in planning the curriculum. Three families (of the 100 target children) declined or could not be reached for an interview. Parents and teachers were also asked how they collaborated in planning the curriculum. (Some demographic data about the families was also gathered — see Chapter 2.) The interviews with the teachers were long; the questions relevant to this chapter focused on centre-home communication about children's interests, whānau and parents' aspirations for the children, and parents' contributions to planning the educational programme.

One purpose of the review of portfolios was to see the nature and extent of written communication about the child's learning between parents and teachers. We also checked the portfolios to see if continuity of learning was documented.

Once in the centre settings, the researchers learned that four of the five centres with 100% qualified teachers regularly used email communication to share information about children's activities, interests and learning. Most of these centres included photos; and one even added YouTube clips from time to time. No centre with 50–79% qualified teachers mentioned sending emails to parents about the day or week. With one exception, the email approach to communicating with parents was appreciated by the parents, who told us about this form of communication during their interview:

They have the daily diary by email, we can respond to that. My husband gets it also. We forward some things to our parents or aunties and uncles.

If they send something I give them a reflection straight away. The mornings are so rushed. It is very effective, I am glad they are using electronic discussion.



The exception was a parent who felt inundated with photos she needed to view to find any that included her child. Email communication was not in our research proposal and was therefore not studied systematically.

## Planning in the 10 case study centres — the context for communicating

Policies related to planning and evaluation (self-reviews) are a requirement for early childhood education services. All case study centres talked about planning being undertaken at staff meetings; some planning meetings were held weekly, some fortnightly and some monthly. Thematic analyses revealed differences in the descriptions in relation to the public visibility of planning documentation, and who was planned for (individuals and/or groups).

All case study centres with 100% qualified teachers described their planning system in greater detail than the centres with 50–79% qualified teachers. All centres in the 100% category said that the curriculum plans were put up on a wall or notice board for parents to read. These plans were for both individuals and groups (usually for a specific age group in a room/space, and sometimes also for an older group, who were offered additional transition-to-school experiences). An illustration of planning follows; it was captured during interviews with two senior staff at a centre with 100% qualified teachers.

Weekly planning is done for each group (under 2s and over 2s), and fortnightly by the whole staff. The plan is up on the wall there for parents [to contribute]. It can be scary for parents to come and suggest stuff. I expect teachers to pick [ideas/suggestions] up in conversations and go, “OK. I can take that through to our planning meeting.”

Since I’ve been in the role, I’ve been making planning more visual. The Learning Stories were fine, but the actual planning [needs to be] visible for us, children, parents and whānau and community. ... For me a planning wall is a good idea. ... I wanted to bring the planning back to the basics, with one plan at a time. [The system] is quite structured. For example, we talked about two children at the last meeting, what are we planning on doing to extend them as they’re incredibly able. We do things for them within the wall plan. The planning wall is low so children can read it.

The interviewees at another 100% centre spoke about how they analysed what was happening, in order to think about learning outcomes in their planning. The centre has two staff meetings each month, one of which is focused solely on planning. (Planning is also part of the second meeting.) No particular teacher is allocated to write Learning Stories of a particular child: “It’s a shared thing; we do it all together.” Planning is based on children’s interests.

We plan around key interests, consider the learning outcomes we want to achieve and what scaffolding is required to achieve the outcomes. At meetings, Learning Stories are examined by teachers as a team and threads are highlighted for each child. From this an individual plan is developed, and some goals set for the child.

We have a foundational skills programme for the older children which fosters the skills they need before they begin formal reading, writing and maths. This is threaded throughout the overall programme for the older children.

Interviewees in two centres also said planning was done specifically for their 4-year-old group.

Only one centre, the bicultural centre in the 100% qualified teachers’ category, was explicit about planning for teaching and learning te reo me ona tikanga Māori: “We make sure we have bicultural practice running through every time [monthly plan].”

One centre commented that not all topics planned for are child-initiated. The example given was when teachers initiated a project on sustainability.

Two centres in the 100% qualified teachers' category said that children contribute to planning too, by commenting on what they have 'read' on the wall plan, and/or giving teachers or their parents some new ideas. Parents then relay the proposals to the teachers.

In the centres with 50–79% qualified teachers, staff spoke about planning in less detail. One centre said the teachers had taken part in professional development focused on planning the previous year, and currently all teachers were engaged in professional learning about self-review (evaluating how planning worked). Nevertheless, the interviewees did not explain their planning system.

In three of the centres with fewer qualified teachers, the interviewees said that their plans are displayed on a wall so that parents could read them. Another case study centre in this category had a 'curriculum book' for the under-2s, and another book for the older children; both are put in the foyer for parents to read if they want to. A number of descriptions of planning indicated to the researchers that educators' 'plans' were not for future teaching and learning, but Learning Stories about a previous time period that did not necessarily include a statement about 'possible lines of direction' for extending children's current interests (*Kei Tua o te Pae, Book 1, 2004*).

## Sharing aspirations for the children

Centres fell into two groups: (a) those that had systems in place to hear the aspirations of parents for their children; and (b) those whose staff learned about aspirations because of their relationships and communication with parents. These two groups did not align with the two categories of qualified teachers.

## Systems for parents to communicate their aspirations

Two centres with 100% qualified teachers described specific systems to supplement informal communication. One centre runs an annual strategic planning session involving parents, and a parent–child evening session once each term. On both of these occasions, teachers ask parents about the goals they have for their children. The second centre has personalised 'interviews' with parents as their child transitions between rooms (from one age group to another). The parents meet with a supervisor and/or room leader from the child's current and new room; they have an opportunity to express what they expect, and 'where they want teachers to take their child'. They also learn more about how the child is at that time. The teachers said they prepared carefully for these appointments, including a description about what parents and children can expect about the next room.

Three centres with 50–79% qualified teachers have formal systems designed for 'listening' to parents about what they want/aspire to for their children. One centre holds whānau evenings once a term and it also undertakes surveys from time to time. The second centre uses two forms: one 'introduces the child to teachers', and is filled out by parents when the child is enrolled; the other, labelled 'Welcome back to [child]', is distributed annually over the summer break.

Once a year we send home a welcome back to [centre name]. We ask them, 'Do you have any aspirations for your children?' 'Do your children talk about something that we could ...?'

The third centre does something similar at the beginning of each year. It sets up an 'aspirations white board' outside the front door with a marker pen. Parents are invited to write down what they would like to happen for their child's learning in the coming year.

## Learning about parental aspirations informally

Four of the five centres with 100% qualified teachers relied on good relationships and communication with parents.

We find out about parents' aspirations through key teachers knowing their [sic] families, allowing them to talk.

We know each other so well. You know you just get to the point and say, "What do you think about this? What would you like him to be able to do?" They come with very specific goals.

All centres talked about informal conversations with parents when they are dropping off and picking up their child being important for hearing parents' aspirations for their child. One interviewee added that the period when new parents are in the centre settling their child is another good time to listen to their aspirations.

Sometimes the topic of aspirations involves two-way communication.

I think what's really important when you talk about aspirations for the children is that parents actually understand our programme ... We explain what we do, and why we do what we do, right from the beginning. It clearly indicates to the families the philosophy of the centre and what it means coming to this centre so they understand where we are coming from.

One 100% centre spelled out how they demonstrate that the team values informal conversations. Each day, the permanent teachers and head teacher deliberately position themselves close to where parents tend to come when dropping off and picking up their child (which is near the planning wall), and the head teacher asks any relievers to cover the other areas at those times of the day.

All the centres with 50–79% qualified teachers said they talk to parents at the beginning and/or end of the day; this is the main way they learn the aspirations that parents have for their child. One centre with a high percentage of parents who speak languages other than English added that they deliberately stick to oral communication when they seek out parents' aspirations for their child.

I think it's quicker for them to say it, and sometimes they are not comfortable with writing it anyway.

## Parents' expressed aspirations

For the large majority of families, it was the mother who agreed to be interviewed. Four themes emerged from an analysis of the sample parents' responses to the question about their aspirations for their child by the time they start school:

- Positive dispositions
- Social skills
- Some early literacy and number skills
- Strengthened cultural identity and te reo Māori.

The first three themes were expressed by almost all the parents. Examples of dispositional aspirations include:

Be exploring and outgoing.

We hope [target child] will learn self-control as can be forceful; ... learn self-regulation.

I hope he will be confident in himself, give things a go.

Be a caring person who notices other children.

Often the dispositional and social skills aspirations were rolled together.

I would like her to start learning to take responsibility.

Be able to mingle well with other children.

Learns to make friends, how to treat others, share.

I hope she will be confident in herself and learn that 'the world is her oyster', that she can do anything she wants. She will have respect for people and their environment.

Social skills were mentioned by parents.

A bit more independence. Making friends with kids his own age.

Be able to mix with diverse people.

Some parents emphasised wanting their child to behave in line with values such as respect. There was very little difference in parents' responses about a toddler or a 4-year-old, although a few parents of older children said their aspirations had been fulfilled already.

He knows all he needs to know now [in relation to starting school].

Pretty much the person she is now.

The centre has already helped [target child] learn some literacy basics such as recognising letters of the alphabet and writing some letters.

Before starting school, parents wanted their child to have some literacy and number knowledge and skills.

Have a basic understanding of foundational concepts before school.

To have a good vocabulary and knowledge of types of words so she can make connections with reading and writing.

Count up to 20 ... and say the alphabet ... spell their name.

I hope he learns the basics of reading and writing.

The fourth aspiration was more visible in responses of parents in the two bicultural centres. It was also expressed by parents in two other centres with 50–79% qualified teachers—the two centres with a Māori head teacher.

Te reo Māori. And to be happy.

It's important that she understands her identity — being Māori.

More te reo.

Language development is important. I hope [target child] will understand our language.

As well as the responses that fell into the four themes above, parents expressed miscellaneous other goals for their child's learning by the time s/he started school. These included road safety knowledge, polite manners and catching up on speech and language. Some parents, when prompted to comment on whether the centres gave them an opportunity to talk about their aspirations, replied, "Not really."

## Shared contributions to curriculum planning

### Informal conversations

All centres have several approaches that are used to share information and work with parents in connection with the curriculum for the children. Face-to-face (kanohi ki te kanohi) talk was always mentioned, and that is frequent as children are dropped off and picked up. There are infrequent discussions at parent events. If parents and whānau assist with excursions, there are opportunities for informal discussion between them and staff.

Teaching staff said their chats at the end of the day were the way they learned from parents. One centre's educators said that when they give feedback about the child's day, they emphasise the positive things each child has done. However, even chats may not be easy in some communities or with some families. Parents in another centre were described as initially too shy to talk unless explicitly invited, "Come in."

### *Parents' perceptions*

Face-to-face is when parents were more likely to volunteer information.

Communication is very open. In the mornings or afternoons, especially if [target child] has issues, I can tell the teachers.

Overall, most parents were happy with the communication they had about their child.

I'm happy. The quick chats keep me up to date with [target child] and her progress.

A few parents expressed some dissatisfaction regarding feedback about their child. One alluded to a couple of staff not being good at communicating, and said there was not much feedback apart from reports of accidents. In another centre, a parent felt there could be more said about 'educational things'.

When we asked parents if they had been asked to contribute to planning the programme (curriculum), or to tell the teachers about the child's interests at home (so that they could be incorporated into the programme at the centre), some parents from both categories of case study centres said something akin to, "Not really."

We haven't really thought about it. We've never been asked.

Some paused and added that they did tell the teachers about what they'd done at the weekend, or for a birthday. One parent recounted describing her child's interest in playing several musical instruments to staff, and said there was no follow-up by educators as far as she knew.

There were positive stories as well. A parent whose child attended a centre with 100% qualified teachers said she informed the teachers about [target child's] interest in water, and a day or so later the child asked if a family member could bring in their jet skis. This was organised.

He did bring in two jet skis and it was a great morning. D [name of child] just loved it. You could see him grow.

Dogs, a frog and insects, as well as special toys, had been welcomed and incorporated into the programme at several centres. The children kept the frog in the centre and caught it flies to eat.

### *Teaching staff perceptions*

The practitioners had a different perception of involving parents in programme (curriculum) planning. They believed that they did involve parents, and described a variety of approaches. A common way is asking parents to bring in holiday photos. Other requests may be for the children to be dressed up for, say, a pyjama party, or St Patrick's Day. Some examples are for longer-lasting curriculum plans; for example, in centres with 100% qualified teachers, staff ask via email whether parents can contribute to projects. They have experienced a high level of parental response. One said:

When we had a project on fruit and veges ... we made a basket and we sent that home every day with one child and the child had to bring their favourite food the next day. This was a way parents know what is happening and how it's going.

Another example was provided by a head teacher in a centre with 50–79% qualified teachers:

We are talking all the time with whānau, when we learn about interests that each child has going; ... finding out where we can make things happen for parents and children learning together ... make it go side by side.

She went on to tell a story about knowing of a family's dog and suggesting to the father that the centre take the child (and dog and friends) for the next visit to the vet. They did. Her other example was extending children's interest in huts through a project on wharehenui, culminating in parents and children going on an excursion to the local marae.

Many parents talked about the centre in general terms, rather than about communication to do with their child and/or the educational programme. Expressions of satisfaction were explicit about: their centre having 100% qualified teachers, their bicultural centre using te reo Māori, the teaching team working within Christian values, and some staff with languages other than English in their centre being supportive of parents using their home language at home.

Whānau of the bicultural centre with 50–79% qualified staff liked the fact that the centre was supporting their goal to raise bilingual children who understood tikanga Māori. One of the kaiako made the point that “whānau appreciation of bicultural practices reinforced [motivated] the teachers' intentional inclusion of te reo Māori”. The day in the life of these kaimahi (see Chapter 7) includes morning karakia involving all children, kaiako, kaimahi and whānau.

Other parents described ambience features important to them.

A caring centre ... [Target child] owns her teachers. ... She has a strong connection to them, so we parents do too. We feel very comfortable here ... they're very accepting of individual characteristics.

Very professional. I've learned a lot from observing them and their approach. The teachers are there because they care about what they are doing. They enjoy their job.

I like the mixed age groups so [target child] can have time with younger children.

It feels family-friendly and the kids all love their teachers. The teachers understand that they have to interact differently with each child.

Like the small group setting ... our child won't be left out.

Illustrating their centre's manaakitanga, two families from the bicultural centre with 50–79% qualified teachers said they “pop in to see how the day's going”. One of the mothers said:

We make the effort to spend time at day-care. This is usually the time that we catch up and exchange dialogue with the kaiako. Talk is reciprocated quite freely by both parties. If there are things of interest, this information is shared when they arise, and likewise for kaiako.

Sometimes the interviews revealed what was important for parents when dissatisfactions were aired. There was one criticism of a 100% centre from two parents wanting more time offered for in-depth discussion with their children's primary caregiver. There were expressions of dissatisfaction by three parents about centres with 50–79% qualified teachers: one wanted to see closer supervision of children, another sought more ‘teaching/education’, and the third wished she'd been made aware of her child's portfolio by staff (rather than the researcher).

## Written communication

Teaching staff use various written formats to share information with families about children's interests and activities at the centre. Universally, practitioners in the case study centres create personalised portfolios (sometimes called profile books) for each child. Most parents of infants and toddlers who were interviewed also mentioned daily notebooks or emails about their child (that record information about an infant's food, bottles, sleep and toileting).

Other written communication sent by the teaching staff about children's interests and learning tends to be focused on groups of children (unders- and over 2s, or rooms), and includes



newsletters, notices and a variety of forms. Some are printed and distributed; others are sent out electronically (noticeably in 100% centres where family profiles include more professional families); and some are displayed on whiteboards or walls. These communications have the desired effect in some cases.

When we were doing Reduce, Re-use, Recycle, our parents were well and truly in: “Oh, I’ve got this at home.” We do try and display our planning to get them involved with what they can help us with. Parents do come with materials that are included in our plans [posted on the wall], sourcing these from their workplaces as well as from home.

Planning and communication tasks more than fill the hours each week when practitioners do not work directly with children. Two hours per week seemed to be the average ‘non-contact’ time, but the range was from one hour per week to four hours per week for qualified teachers. In some centres, unqualified and/or in-training staff do less planning and documentation for parents and whānau, and they have either more administration and tidying to do, or less time ‘off the floor’.

A large majority of the written communication is both initiated and written by the early childhood teaching staff. Parents are invited to reply on forms or in the portfolios themselves. We wanted to find out more about how the staff communications were received and about any reciprocity.

### Personalised written information — children’s portfolios and notebooks

Portfolios can contain samples of children’s art or ‘mark making’, and some centre material (e.g., the centre’s philosophy statement, photos to introduce the teachers, an outline of *Te Whāriki*), but typically the majority of the content is in the form of Learning Stories (Carr, 2001; Carr & Lee, 2012) — narratives of learning, with or without photos.

Learning Stories are the most common form of assessment by teachers in early childhood education in Aotearoa New Zealand. They appeal to parents, children and extended family, although they may puzzle about stories of learning being described as ‘assessment’.

The books [portfolios] are fantastic. They can be picked up and taken home — a great way of communicating. Also, there are Learning Story posters on the wall of individual children.

They send home work that he has done in his profile book. We enjoy that and give it to his grandmother.

As well as Learning Stories being shared in the portfolios, a number of the case study centres pin some on notice-boards in the centre.

It’s to try and keep them interested. When they walk in there’s actually a Learning Stories board. We are very visible with photos so that they look and say, “Oh, look. There’s my kid.”

Most parents told the researchers that portfolios are important. A frequent commendation was that they find out about their child’s interests and what they are doing during the day by reading them (and/or by reading Learning Stories on the wall). Parents share them with grandparents or other whānau near and far. Portfolios are also books that parents say they love to take home and read with their child and talk about.

However, one parent said that she was unaware that there was a portfolio available to look at. She was an exception. Her comments suggested that she did not regard the portfolio as belonging to the family. Another mother expressed disinterest or disappointment in her child’s portfolio, as when she looked at it last there had been no new entries for months. Both these children were attending centres where there are fewer qualified teachers. These critical comments suggest that portfolios are of variable importance for centres, or some centres simply do not have the capacity and/or teacher capability to work on them.



The frequency of portfolios going home varies too. Some centres seem to determine the timing, whilst parents in other centres indicated that they or their child could choose when to take the portfolio home. Systems and pragmatics come into it.

Each time we do a Learning Story we let parents know they might want to take the portfolio home and see what has been going on with their child.

The notebooks or Daily Diaries kept for infants and toddlers by teachers are also widely appreciated. Parents want to know information about the rhythm of the day's routine so they can be in step when everyone gets home, and know when and how much to feed their baby in the evening. Other favourable comments about the notebooks or emailed Daily Diary were about them being consistent in content, current, and able to be shared between family members. Sometimes the notes give parents a 'heads-up' to ask staff further questions about the day.

### *Parent contributions to portfolios*

Most of the centres invite parents and whānau to contribute to children's portfolios on what are commonly called 'Parent Voice' or 'Whānau Voice' forms, or in Parent Voice spaces within the portfolio. What did the researchers find about parent and teacher contributions when we reviewed the portfolios (profile books) of the 100 target children? A summary matrix is provided below.

TABLE 22: PARENT AND TEACHER CONTRIBUTIONS TO PORTFOLIOS (PROFILE BOOKS)

100% qualified	Pattern of parent contributions	50–79% qualified	Pattern of parent contributions
Tui	8/10 parents added. Max of 15 contributions by one parent; average 3–5 entries, with teachers usually responding, one wrote several entries in a 'thread'. Teachers averaged one entry per month per child.	Totara	4/10 parents added, of which three were just the forms completed at enrolment: 'All about me'. Only 3–4 stories in each portfolio. One parent interviewee said she had not seen any new entries for months
Piwakawaka	3/10 parents added, two of whom did 10+ entries. For toddlers, more exchanges seen in Daily Diaries/notebooks, including photos. Prolific teacher entries (max 90 for a 4-year-old; max 30 for a toddler).	Pohutukawa	8/10 parents added, of which four were once, and four were multiple. One family added photos 9 times. Two indicated target child's interests at home. One parent responded to teacher's Learning Story.
Kaka	5/10 parents added. Additionally, lots of email reciprocal communication. 3/10 portfolios had teacher entries about centre activities that picked up on home interests. More group stories with multiple voices in older children's portfolios because of Reggio Emilia influence.	Kowhai	No parents added anything. The only glimpse of family information was one Learning Story mentioning the visit of a brother.
Kakapo	3/10 parents added, but 2/10 were new enrolments. Staff notified new Learning Stories; then parents take the portfolio home. 3/10 parents said they'd read the portfolio, two of whom added entries as a consequence	Kauri	7/10 parents added a few photos and occasional holiday news.
Kereru	No toddlers' parents added anything; 3/6 of older children's parents had written in the 'Whānau Voice' space or added a photo. All parent interview 'sign off' sheets (November) were added.	Rata	7/10 parents added; mostly just their child's <i>pepeha</i> , and photos. Only one wrote of child's interests.

The researchers were asked to note if there was any written dialogue between parents and teachers in the portfolios. Teachers in two centres with 100% qualified teachers had set up a 'dialogue' based on parent entries on at least one occasion. In another 100% centre, a few parents 'answered' teachers' entries. From comments made or overheard, there was plenty of genuine dialogue in the email communication between teachers and parents. Teachers' information about the child's learning that day was immediate, and the responses back from parents informed the programme.

During their review of the target children's portfolios, the researchers were not particularly consistent in what they recorded, as the template given to them was fairly open-ended and Learning Stories varied within and across centres.

When portfolios contained only standardised pages (such as an introduction to the centre and to *Te Whāriki*, the child's pepeha or the 'All about Me' form, and some photos of group activities), there was little recorded on the form for each portfolio review.

Some patterns are evident. Teachers in most case study centres with 100% qualified teaching teams were writing more Learning Stories in the children's portfolios than were unqualified staff in centres with fewer qualified teachers (in one centre many, many more), and these are often rich personalised narratives. Parents of the target children added some sort of contribution in all five of the 100% centres.

In one of the case study centres with 50–79% qualified staff, no parents contributed anything to their child's portfolio, and two of these centres had minimal parent contributions (that is, one sheet completed at time of enrolment — the child's pepeha or 'All about Me' form — and moreover, staff would insert these). The researchers classified most entries in these centres as being like anecdotal records of what the children *did*, rather than narrative records of *learning*. No centres in the 50–79% category routinely engaged with parents via email.

One centre in the 50–79% qualified teachers category stood out as being different: the teaching staff prepared far more portfolio entries. Even though many entries were group photos and some general text, in most group photos the target child was visible. As a consequence of the nature and extent of the educators' entries, the parent response in this centre was stronger than in any other centre with fewer qualified teachers. This was the centre that had higher ratings on the NZCER ECE Quality Rating Scale compared with others in the same category. A picture is building of different patterns in the way educators work in this centre, even though its teacher profile was similar to others in the 50–79% category.

Teachers in only one centre with 100% qualified teachers added a pro forma entry: the sheet that whānau complete and sign when they attend the annual November 'parent interviews'. As stated above, teachers in 100% centres are the ones who achieve occasional dialogues with parents in portfolios, and apparently frequently in email communication.

## Conclusions

This chapter focused on our third research question: 'What features of the two types of education and care centres have positive (or negative) effects on family participation?' Rogoff's (1998) definition of learning and development as 'transformation in participation' in sociocultural activity anchored the discussion. This was most evident in the 100% qualified centres where, in particular, the regular (sometimes daily) email communication has transformed participation of parents. Some change, but not sufficient to be described as a transformation, was also evident in the occasional written dialogues between one or two parents and teachers about the children's interests and learning recorded in the portfolios of target children in two 100% centres.

All centres valued face-to-face (*kanohi ki te kanohi*) talk; however, in the 100% qualified centres, more of the communication was intentional rather than informal. For example, one centre plans for teacher deployment in the space where parents congregate: that is, teachers deliberately station themselves close to where parents come when dropping off and picking up their child.

The case study centres with 100% qualified teachers described their planning system and its rationale in greater detail than the centres with 50–79% qualified teachers. The valuing of partnership and shared participation was evident in interview data from both parents and teachers; however, teachers reported more positive perceptions of actual participation.

The shared goals and values of the bicultural centre, which has 50–79% qualified teachers, ensured that whānau and kaiako worked together to strengthen children's learning te reo me ona tikanga Māori (e.g., the centre and whānau joined together for morning karakia). Another 50–79% centre too provided some descriptions of staff participating in shared projects with whānau. Transformation of participation, indeed change in participation, was not evident in the other centres with fewer qualified teachers. One illustration comes from the researchers' examination of the target children's portfolios and Learning Stories: that set of data demonstrated that the teaching staff and parents in the centres with 50–79% qualified teachers were less engaged in assessment practices, compared with the centres with 100% qualified teachers.



## CHAPTER 7

# A day in the life of teaching staff and children in the 10 case study centres

The researchers' interviews with the head teachers and/or managers of the 10 case study centres were helpful in gaining a picture of a typical day for staff and children, and comparing and contrasting the centres.

### A typical day for the head teacher/manager

Some of the interviews produced little information about the role of the head teacher or manager. However, it is a given that those in this role spend a sizeable proportion of their day on management tasks, in addition to time in a teaching role.

All the head teachers maintain oversight of all aspects of education and care. Moreover, in most centres, the head teacher works with the staff and children for some hours each week, ranging from one or two hours each day to half the day. They talked about having a team approach to providing education and care for the children. In practical terms, this involved working with the children while teachers had their lunch and/or non-contact time. At four centres, Piwakawaka and Kereru (100% qualified teachers) and Pohutukawa and Totara (50–79% qualified teachers), the head teacher works specifically with children aged 4 years or over, as part of the planned transition to school experiences for the oldest children.

All the head teachers have a wide range of management and administration responsibilities. These include: overall administration, including keeping records to fulfil Ministry of Education requirements; working out staff rosters; meeting with new families and answering their inquiries; communicating with staff, parents, and community; planning for the future of the centre; complying with legal requirements; and managing risks. Head teachers typically also attend outside meetings, such as those connected with the Education Review Office and Group Special Education (Ministry of Education). This list of responsibilities is not exhaustive. For example, if there is no separate manager, head teachers must manage the finances too.

The oversight of teaching and learning is considered very important. One of the managers at Piwakawaka described it as follows:

I'm always watching and thinking and questioning myself and thinking about what's happening for the teachers. She [the teacher] responded [like that] ... why? Why did she respond that way...I need to catch her later and I can have a yarn with her about why she did what she did that way?

Management and leadership roles connected to teaching and learning include inducting new staff, facilitating staff meetings, implementing internal professional development for staff, leading self-reviews, and carrying out staff appraisals. (The on-line surveys augmented the case study interviews. From the surveys, we learned that head teachers provide the induction for new teaching staff and deliver professional development at staff meetings.)

At centres with some unqualified staff, the head teachers have an extra role. For example, at Pohutukawa:

The head teacher gives additional support to unqualified teachers who may struggle to understand planning and the theories underpinning it ... She has a major role in supporting several teachers in training and mentoring a teacher who is provisionally registered. (Researcher's notes)

Comments made by some respondents to the on-line survey give indications of what is involved for head teachers in the role of coach for unqualified educators.

They [unqualified staff] are supervised on the floor on a daily basis. Hands-on training. Discussions are held at staff meetings and copies of relevant reading material are distributed.

Unqualified staff are allocated an hour mentoring a week with the head teacher and are supervised throughout the day to support their programme planning and offer other support if needed.

The head teacher and senior teacher monitor unqualified teachers and provide one-on-one discussion and reading.

Discussion of expectations, observations of ability to work with children with feedback provided and support offered to adapt if necessary. An outline of the shift to be worked, and a person to refer to if support is required.

This outline of head teachers' responsibilities gives an indication of how the nature of early childhood teachers' work is influenced by the background of the staff they work with.

## The day's routines for teaching staff with under 2s

Teachers' working days are also affected by their centre's opening hours, and the patterns of children's days. Patterns of attendance and the varying ways that days are typically organised are outlined below.

Most children aged under 2 arrive at their centre with a parent before 8 am. They and their family members are greeted by the teachers assigned to their section, or by their primary caregiver/key teacher. In many centres, breakfast is available for those children who require it. The pattern for the rest of the day varies from centre to centre, although all centres have established adult-and-child routines for nappy changes, morning tea, lunch and afternoon tea, bottles for the infants and toddlers, and either one or two sleep times.

For most of the centres with some unqualified staff, these routines are at fixed times. Pohutukawa and Kowhai have adult-initiated activities between caregiving routines, including mat time, music, outdoor play and indoor activities. Totara, which has only four children aged under 2, allows free movement between the spaces for under 2s and over 2s for most of the time. Rata also has no fixed times for activities, instead providing for free play between caregiving routines. Kauri follows a similar pattern, although teachers separate the age groups for mat time and for the transition to school group.

The centres with 100% qualified teachers tend to be more flexible with routine care times. They describe these as 'following the rhythms of the children', so that bottle feeds, sleep and nappy changes occur in response to the child's expressed need for sustenance and/or sleep. Tui has fixed meal times and Kakapo has a fixed lunch time but 'rolling morning tea'.

The programmes at these five centres with 100% qualified teachers are similarly flexible, apart from Kaka which has a set programme of activities. Teaching staff in the other four centres set up activities early in the morning and the children move between them, playing and exploring their interests. At Kakapo, for example, "Teachers note what interests the child and set up activities to address the interests." Infants and toddlers at Piwakawaka "have access to indoor and outdoor play throughout the day and are free to explore and discover".

## The day's routines for teaching staff with over 2s

A typical day differs among the centres. Most centres tend to have fixed times for routines such as meals, sleep and mat time, although Kakapo and Tui Centres (100% qualified teachers) have 'rolling morning tea' times.

Some centres separate the age groups. Age divisions were between 2–3½ years and 3½–5 years (Kakapo); and between 2–3 years and 3–5 years (Kaka).

Totara, Kauri and Rata (centres with 50–79% qualified teachers), have a special time when the 4-year-old children participate in adult-initiated activities to "prepare the children for school". The head teacher at Totara Centre described this as:

A pedagogical approach ... it includes exploration, teacher modelling, teacher interactions, conversations and open-ended questions as children play or participate in everyday experiences like cleaning and gardening.

Rata, a mixed age centre with no age-group separation, found it necessary to choose the time when the younger children sleep, so as to organise experiences for older children involving early literacy and numeracy. That is also the time when they take the older children for walks.

Most centres described their pedagogy in relation to the older children as child directed. Equipment and experiences are offered, and the children are encouraged to follow their interests. Piwakawaka teachers explained that the environment was carefully prepared with spaces where children could:

...quietly ponder, reflect or just 'rest a while'. Small tables, soft lighting tactile fabric and furnishings are used to create inviting, home like spaces for children. ... Tables are set with thought provoking resources, stimulating children's curiosity and fostering their desire to what [sic] to learn.

## A typical day in the life of teaching staff

The centres in the 100% qualified teachers' category have separate staffing arrangements for children aged under 2 and over 2 years.

Kauri, a small centre, and Totara, which has only four children aged under 2 change their staff roster weekly to cover all responsibilities across the age groups.

## A day in the life of teaching staff working with under 2s

The centres vary in how managers allocate staff responsibilities for the infants and toddlers in their care. Four centres have a 'primary caregiver' or 'key teacher' for each child (three of these are centres with 100% qualified teachers). The role of this staff member is described at Pohutukawa as the person who is responsible for planning for the child's learning:

This is to promote consistency, belonging and well-being, giving the child a secure base person to get back to if feeling sensitive at any time. The key teacher's role [includes] making a bond with the child and getting to know them holistically, and being available for the child whenever possible.

The 'key teacher' is also responsible for making time for discussion with parents/whānau, and for entries in the child's portfolio. She ensures that another staff member is there for the child if she is absent.

The head teacher at Tui Centre described the primary caregiving role in these words:

Teachers have their 'profile children' and their parents mainly deal with that teacher if they're talking about the learning of their child. They match quite early on because some parents get drawn to certain teachers. With the infants and toddlers, the 'profile teacher' tries their best to do routines [like nappy changes] for his or her profile children.

The other six centres that do not use a primary caregiving system operate a roster of designated teachers for the under 2s. The head teacher at Kaka explained their roster system:

Our rosters are rotated, like one day I'm floating and I do the cleaning for the day, meals and cleaning after meals and I have to write in the under-ones' books ... Then another day I do nappies.

Some centres have few children in this age group: Kowhai has only two, Totara has four and Kauri has eight toddlers. Where there are fewer children there is a smaller group of teachers that the children relate to. The number of infants and toddlers in the other centres ranges from 10 to 25.

## A day in the life of teaching staff working with over 2s

Rosters are drawn up for the teaching staff working with children aged over 2. In most of the 10 centres, rosters operate for a week. This means that over time, teaching staff have a turn undertaking different responsibilities and routines, such as nappy changes and meal preparation. One of the most common rosters is for staff to rotate between indoor, outdoor and 'floating' duties.

Head teachers are included in the roster at some centres, especially those with some unqualified staff members. The rationale for their inclusion is both pragmatic and values-based. The head teacher at Kowhai, for example, explained that teaching staff should not be expected to do anything she would not do:

If we have to do something we have to do it as a group. Otherwise it's too hard and so we share the load that way.

The teaching staff there also commented that sharing tasks via the roster provides an opportunity for all of them to build relationships with children across the centre, as well as with parents, for example, when settling children and welcoming families.

The four centres with primary caregiving systems prioritise consistent relationships over staff rosters to enhance children's sense of security, particularly for infants and toddlers. This system



also gives parents consistency. A different team approach prevails and they do not change staff duties weekly. At Piwakawaka, for example, the interviewee explained that:

There are two groups of children — one group has two teachers, and the other has three teachers. This is to ensure that parents have a teacher who knows their child well that they can talk to, and to provide continuity when teachers are away (such as on placement). Teachers within the group work on each other's profiles (assessment and planning), but this is not exclusive so that if they are working with a child who isn't in their group 'they can still follow that learning journey'. A significant part of the teacher's responsibility is to do with the notion of 'intentional' planning and preparing the environment, including the documentation of children's learning.

Most of the centres with some unqualified staff did not differentiate responsibilities between these staff and the qualified teachers. Totara reminded the researcher that centres need to ensure that there is always a qualified teacher 'on the floor'. Kauri explained that their unqualified educators had had children of their own and had 'hands-on' knowledge. The manager had found that they shared knowledge and wisdom with the younger staff who were studying toward their teaching qualification. She said:

I don't class any of my team as unqualified. They are qualified because they come with their own uniqueness. They are all equals ... I teach my team as tuakana-teina — the older ones teaching the younger ones, the younger ones teaching the older ones. [For example], XX who has got a qualification can guide the unqualified teachers on Learning Stories.

## Non-contact time

Most teaching staff also had some non-contact time during the week, varying from 1.5 to 3 hours. This is time to do assessment and planning, or to work on the portfolios of designated children.

## Conclusions

The everyday working world of early childhood teachers is shaped by the licence conditions, namely the centre opening hours and the ages of children enrolled. Centre policies about rosters and primary caregiving systems have marked impact too.

In the case study centres that have some unqualified staff, more is asked of those teachers who are qualified and registered to guide and support their unqualified colleagues than is asked of teachers in centres with 100% qualified teachers. The head teacher, in particular, has a wide array of additional responsibilities around induction, observation, setting and clarifying expectations, and on-job professional development for any staff who are not qualified teachers.



## CHAPTER 8

# Adult–child interactions

### Introduction

At the heart of quality early childhood education is effective pedagogy based on respectful relationships. Relationships are established and the effects of pedagogy are strengthened through interactions between children and educators. Sally Peters and Keryn Davis (2011, p. 7) explain:

Pedagogy has been defined as the techniques and strategies that enable learning to take place in early childhood settings and provide ‘opportunities for the development of knowledge, skills and dispositions’ (Siraj-Blatchford, 2010, p.150). One feature of pedagogy is the interactions between adults and children. It is through interactions and activities that children begin to own the ideas and beliefs of their culture and begin to make sense of their worlds (Rogoff, 2003).

This chapter focuses on interactions between adults and children, and on ‘interactions and activities’ of the 100 target children in the project, to better understand the patterns in the work of early childhood teachers.

### Adult–child interactions

The time-interval observations were mainly focused on the interactions between adults and children, and the activities of the children and their complexity. We knew from the interviews with teaching staff and parents, and from informal observations, that the practitioners held extensive knowledge about individual children and emphasised relationships; that is, relational pedagogy (Papatheodorou & Moyles, 2008, cited in Cherrington, 2011, p. i).

As Chapter 10 will show, the researchers took special note of two particular types of interactions associated with children’s cognitive development: ‘sustained shared thinking’ (Siraj-Blatchford, 2010) and what Fleer (2010) calls ‘teacher mediation’ of concept development. The observations also provide contextual information, for example about teaching staff listening and talking to children.

In each centre, the total number of observations exceeded 1000, gathered over four weeks on average. In the data presented in Tables 23–26 below, each minute is treated as an observation. The data were analysed by turning the observations into rates per 100 observations, in order to compare different categories of case study centres, and of teaching staff, or compare what happened for the younger children and the 4-year-olds.

There were very few unqualified adults observed in centres in the 100% qualified teachers' category (by definition), and they were mainly relievers and/or student teachers. In the case study centres with 50–79% qualified teachers, one third to one half of the practitioners were unqualified. In these centres, some of the observations of unqualified educators included relievers and student teachers.

The observations classified interactions between teachers or educators and target children into two categories:

- short one-directional interactions
- conversations.

For each of these, the researcher noted whether the adult or the target child initiated the interaction. The short interactions are presented first.

TABLE 23: SHORT ADULT-INITIATED INTERACTIONS WITH CHILDREN  
BY ADULTS' QUALIFICATIONS BY LEVEL OF TEACHER QUALIFICATIONS

Staff qualifications	100% qualified		50–79% qualified	
	Mean rate per 100 observations of target children			
Child's age group	QT*	UQ	QT	UQ
2 years and under	22.1	10.1	13.5	13.2
4 years and over	10.6	3.8	5.6	5.9

\* QT is a qualified teacher, and UQ is an unqualified educator.

## Short interactions

Table 23 presents the findings about the short adult-initiated interactions. It shows a collation of rates of interactions between staff and target children by qualified and registered teachers and unqualified educators, in the five centres with 100% qualified teachers and the five centres with 50–79% qualified teachers. Data for the two age groups of target children studied are shown separately. It can be seen that the children most likely to receive attention were the toddlers in centres with 100% qualified teachers, and the majority of these will have been initiated by the qualified teachers. The deployment of staff is influential for these findings. Centre ratios for under-2s are required to be better (than for four year olds). Centres that assign qualified teachers to the spaces for this younger age-group have more opportunities to achieve interaction rates that rank above others who do not or cannot.

In the centres with 50–79% qualified teachers, there was little to distinguish qualified teachers and unqualified educators in their interactions. This was true both with toddlers and with children aged 4 and over. The findings seem to illustrate the effects of the 'we act as a team' philosophy espoused in the interviews in centres with fewer qualified teachers. Although interviewees said qualified teachers were mentoring and modelling good practice for unqualified teachers, it would appear that this is not so in relation to interactions with children. The rates for interactions with 4-year-olds initiated by qualified teachers in centres with 50–79% such teachers were noticeably lower than in the 100% centres, even though most of the centres with fewer qualified teachers were likely to assign more qualified teachers to the older age group. As well, a qualified teacher ran a 4-year-old group time for 30 to 45 minutes most days in most of these centres.

TABLE 24: SHORT CHILD-INITIATED INTERACTIONS WITH ADULTS  
BY ADULTS' QUALIFICATIONS BY LEVEL OF TEACHER QUALIFICATIONS

Staff qualifications	100% qualified		50–79% qualified	
	Mean rate per 100 observations of target children			
Child's age group	QT	UQ	QT	UQ
2 years and under	5.2	1.4	1.8	1.6
4 years and over	5.6	2.4	2.7	2.6

Table 24 shows the collated data about short child-initiated interactions. Overall, children were less likely than adults to initiate interactions (for comparisons, see the rates in Table 23). Again, the highest rates were associated with qualified and registered teachers in centres with 100% qualified teachers. In those centres, the toddlers were the most confident in approaching the teachers, probably as a consequence of primary care-giving pedagogy evident in the majority of 100% centres. Four-year-olds were observed initiating interactions at a higher rate than those aged under 2 and a half years, but the difference between the rates for each age group was much smaller. In the centres with 50–79% qualified teachers, there was little to distinguish the rates of child-initiated interactions with qualified teachers and unqualified educators in either age group.

## Conversational interactions

Looking at the frequencies of conversations between teaching staff and the target children, we found far fewer conversations between unqualified staff and children (around 500 in the five centres with fewer qualified teachers<sup>6</sup>) than between qualified teachers and children (705 in the five 100% centres, and 668 in the five 50–79% centres). To improve the rigour of the comparisons, the conversation data were subsequently turned into rates.

Tables 25 and 26 show the rates of conversations per 100 observations. For babies and toddlers, the definition of a 'conversation' was broader than a verbal conversation. For example, a teacher rolled a ball to an infant, who crawled to fetch it and rolled it back with a wide grin, and the 'conversation' proceeded back and forth. Other fairly typical 'conversations' occurred at kai time, as babies and toddlers signalled choices, speed of eating and quantity needed to satisfy them and the adults responded, verbalising their understanding of the cues offered by the children.

TABLE 25: ADULT-INITIATED CONVERSATIONS WITH CHILDREN  
BY ADULTS' QUALIFICATIONS BY LEVEL OF TEACHER QUALIFICATIONS

Staff qualifications	100% qualified		50–79% qualified	
	Mean rate per 100 observations of target children			
Child's age group	QT	UQ	QT	UQ
2 years and under	9.7	2.6	8.3	6.5
4 years and over	7.8	4.1	5.9	3.7

Table 25 shows a collation of the rates of conversations staff and target children when an adult initiated the conversation. Again, the highest rates are for qualified teachers in centres with 100% qualified teachers. Babies are more likely than the 4-year-olds to be beneficiaries of these conversations, except with an unqualified adult in centres meeting the 100% funding criteria. As stated earlier, unqualified adults in these centres are usually student teachers or relievers.

6 There were two few unqualified adults in the 100% centres to make meaningful comparisons including them.

Unqualified staff employed in the five centres with fewer qualified teachers have more time with infants and toddlers and have learned to 'converse' with non-verbal infants, although their 'conversation' rates are still lower than those of qualified teachers.

TABLE 26: CHILD-INITIATED CONVERSATIONS WITH ADULTS  
BY ADULTS' QUALIFICATIONS BY LEVEL OF TEACHER QUALIFICATIONS

Staff qualifications	100% qualified		50–79% qualified	
	Mean rate per 100 observations of target children			
Child's age group	QT	UQ	QT	UQ
2 years and under	4.3	1.5	2.6	2.7
4 years and over	4.0	3.2	4.3	3.2

Table 26 collates the rates of conversations that were initiated by target children. More adults initiated conversations, on average (see Table 25), than children did. Looking at the 4-year-olds, there was very little difference between the rates of conversations initiated by them in the two categories of case study centres. The rates of 'conversations' initiated by toddlers in centres with 100% qualified teachers were also similar. In centres with fewer qualified teachers, there was little to distinguish the rates of toddler-initiated conversations with qualified and unqualified staff.

## Teaching work with groups

This next section reports on observations of teachers working with the target child in groups. A group was comprised of three or more children. The data are about groups which adults formed (e.g., for meals, mat times and transition to school experiences), and also groups which formed spontaneously among the children, and were joined by the adults. The tables do not distinguish between the two sorts of groups.

TABLE 27: ADULTS WORKING WITH A GROUP  
BY ADULTS' QUALIFICATIONS BY LEVEL OF TEACHER QUALIFICATIONS

Staff qualifications	100% qualified		50–79% qualified	
	Mean rate per 100 observations of target child			
Child's age group	QT	UQ	QT	UQ
2 years and under	12.3	6.8	8.0	5.4
4 years and over	17.8	4.5	13.7	6.6

Table 27 shows which teaching staff did more with groups of children. Not surprisingly, teachers and educators were more likely to work with groups of 4-year-olds than groups of toddlers. One possibly surprising result is the low rate of group work facilitated or joined by unqualified educators, although it was higher in the centres that employ more unqualified educators because there are more of them than in the 100% centres. Nevertheless, the qualified teachers more often came to the forefront for group work.

## Adult–adult interactions

Teaching staff need to be in regular communication in early childhood settings to maintain the flow of the day, and to ensure that all children are kept in mind by at least one teacher or educator. Research has shown that on occasion, adults talking amongst themselves may detract from children's care and education (Meade, 1985). We observed some basic patterns in adult–adult communication, and whether they differed depending on the levels of qualifications in the centres, or the age group of the children.

TABLE 28: ADULT–ADULT INTERACTIONS BY LEVEL OF TEACHER QUALIFICATIONS

Staff qualifications	100% qualified	50–79% qualified
	Mean rate per 100 observations of target child	
Toddlers under age 3 years	1.2	2.5
Aged 4 years & over	0.7	1.0

Table 28 summarises the findings about the occasions when adults in the 10 centres talked to each other in the presence of a target child. The mean rate was low, about 1% of the observations. The rate was higher in centres with 50–79% qualified teachers when the staff were working with toddlers, but only very slightly higher when they were working with 4-year-olds. We can only speculate about the reasons, but we do know that more unqualified educators worked with these children (than in the 100% centres); and few of these centres with fewer qualified teachers had adopted primary caregiving systems that deepen the relationships between educator and infant or toddler, and enhance 'conversations' during intimate care routines. These educators probably were less aware of the importance of 'attunement' and conversations with infants and toddlers (see Chapter 3).

Looking at what target children were doing at the times when adults were talking amongst themselves, the most common places where adults talked amongst themselves were at mat times or the meal table. Meal time talk obviously reflects family life and whanaungatanga, and is a positive aspect of teachers' work. The observations also noted teaching staff talking with parents, a vital part of teachers' work. However, there was a high percentage of time when target children were waiting, as will be seen in the observations reported below, and the reasons for them waiting included adults talking with adults.

## Learning areas

Setting up the environment to engage children in play and exploration is a role to which teachers and educators devote considerable time. Our observations showed where the target children spent most time.

The category for unstructured time/waiting/observing was an after-thought, yet the findings are instructive. We rolled up these three descriptions, as it was impossible to ascertain whether unstructured 'cruising' behaviour involved observation in the service of learning, or was simply a 'time-filler', or both. But when teaching staff kept children waiting, it was obvious that most children were idle.

TABLE 29: MAIN ACTIVITY BY CHILD'S GENDER BY LEVEL OF TEACHER QUALIFICATIONS

Staff qualifications	100% qualified		50–79% qualified	
Activities	% of target child's time			
	F	M	F	M
Unstructured/waiting/watching	21	27	25	20
Creative/art/role/music	24	11	17	14
Playground/climb/swing/ball etc	10	11	10	15
Meal/food	8	8	12	11
Literacy/numeracy/puzzles	8	7	8	11
Group/mat	8	6	5	4
Manipulation/construction/blocks/hammers	4	7	2	5
Sand	3	3	2	4
Nap/rest	3	3	5	4
Careful care	1	2	4	1
Exploration	2	3	1	1
Other*	8	12	9	10
Total	100	100	100	100

\* Other includes water/foam/gloop, science/nature/baking, mini toys/marbles/dough/clay/sensory/self-care by 4 year olds, incomplete observations and other-undefined.

Table 29 shows how target girls and boys spent their time in the two categories of case study centres. About a quarter of the target children's time was spent in an unstructured way, waiting for something to happen or watching the interactions of others (for example, teachers or educators talking to other adults). The girls, especially those in the centres with 100% qualified teachers, were more likely to engage in creative activities than the boys, who were more often observed participating in outdoor activities or building with manipulation and construction equipment. Meals/food and nap/rest time took up more time for the target children in the centres with 50–79% qualified teachers than in the 100% centres. There were more instances of mat times for both girls and boys at the centres with 100% qualified teachers.

TABLE 30: MAIN ACTIVITY BY HOME LANGUAGE/S BY LEVEL OF TEACHER QUALIFICATIONS

Staff Quals	100% qualified			50–79% qualified		
Activities	% of target child's time			% of target child's time		
	English	English/Māori	Bilingual*	English	English/Māori	Bilingual
Unstructured/waiting/watching	24	27	22	23	19	23
Creative/art/role/music	19	7	18	19	9	12
Playground/climb/swing/ball etc	9	8	12	12	15	14
Meal/food	8	3	10	11	12	13
Literacy/numeracy/puzzles	8	1	9	10	14	6
Group/mat	9	6	7	4	5	3
Manipulation/construction/blocks/hammers	4	5	4	3	7	5
Sand	2	5	3	3	3	3
Nap/rest	3	13	2	4	4	5
Infant care	2	5	2	1	3	4
Exploration	4	5	1	1	0	1
Other**	8	15	11	9	9	11
Total	100	100	101	100	100	100

\* English and another home language which is not te reo Māori.

\*\* Other includes water/foam/gloop, science/nature/baking, mini toys/marbles, dough/clay/sensory/self care for 4 year olds, incomplete observations and other-undefined.



There were few variations for target children who came from homes where parents and children spoke languages other than English at least some of the time. In centres with 100% qualified teachers, children who spoke some te reo Māori at home spent more time waiting for activities to start or watching others than their peers did. In centres with fewer qualified teachers, children who spoke some te reo Māori at home spent less time waiting or observing than their peers did. Children who spoke some te reo at home and were in centres with 100% qualified teachers were less likely than the other children to participate in the creative arts, and more likely to spend a disproportionate amount of time asleep. These children engaged less with the creative arts in both categories of case study centres.

Target children whose only language was other than English (LOTE) are not shown in the table, as there were too few of them. However, it was interesting to note that they displayed quite different patterns in the activities they undertook in the two categories of centres. In centres with 100% qualified teachers, children with little English spent a considerable amount of time engaged with construction toys, such as blocks and Mobilo™, or doing puzzles. Similar children enrolled in centres with fewer qualified teachers seldom played outside and spent more time eating and sleeping. These differences cannot be explained as there were too few of these children in our sample, and there is little other research focused on this population of children.

TABLE 31: MAIN ACTIVITY BY SOCIAL INTERACTION BY LEVEL OF TEACHER QUALIFICATIONS

Staff Qualifications	100% qualified				50–79% qualified			
Activities	% of target child's time				% of target child's time			
	Solo	Pairs	3–5 chn	6+ chn	Solo	Pairs	3–5 chn	6+ chn
Unstructured/waiting/watching	34	24	25	10	30	23	22	12
Creative/art/role/music	9	24	23	10	12	19	18	11
Playground/climb/swing/ball etc	8	12	14	6	11	17	16	7
Literacy/numeracy/puzzles	6	12	6	5	9	11	11	8
Manipulation/construction/blocks/hammers	5	7	7	2	3	6	6	0
Sand	3	2	4	2	2	4	4	2
Exploration	3	3	2	2	2	1	1	0
Careful care	5	2	1	0	6	2	1	1
Other	28	14	18	62	25	17	21	59
Total	101	100	100	99	100	100	100	100

Apart from structured group times, such as meals and mat time, the areas of activity where the target children were most often in groups of three or more children were for the creative arts or in the playground. Participation in literacy/numeracy/puzzles more often happened in pairs in centres with 100% qualified teachers.

There appear to be few differences between the categories of case study centres, apart from more target children at the centres with fewer qualified teachers playing by themselves when in the playground.

These data were analysed again, looking at each area of activity to see whether groups of children were attracted to them. Mat and meal times are not included, as children's attendance at these activities is seldom a matter of choice.

TABLE 32: MAIN AREA BY SOCIAL INTERACTION BY LEVEL OF TEACHER QUALIFICATIONS

Staff Quals	100% qualified					50–79% qualified				
Activities	Groupings at activities — %					Groupings at activities — %				
	Solo	Pairs	3–5 chn	6+ chn	Total	Solo	Pairs	3–5 chn	6+ chn	Total
Unstructured/waiting/watching	31	21	39	8	99	31	22	36	11	100
Creative/art/role/music	11	29	48	11	99	18	26	41	15	99
Playground/climb/swing/ball, etc.	18	23	49	10	100	18	28	43	11	100
Literacy/numeracy/puzzles	20	35	32	13	100	20	23	40	17	100
Manipulation/construction/blocks/hammers	20	26	49	5	100	19	30	49	2	100
Sand	19	15	50	16	100	15	26	45	14	100
Exploration	28	26	29	17	100	40	30	27	3	100
Careful care (under 2s)	62	19	18	1	100	59	15	14	12	100

For most activities, being in groups of three to five children was the modal experience. It is interesting to note that watching and waiting often happened in a small group, or else alone (e.g., cruising from area to area).

There were few differences between the two categories of case study centres. One difference was in relation to activities to facilitate literacy and numeracy. Children in centres with 100% qualified teachers were more likely to be observed engaging in these activities with no other children or in pairs (67% of the observations), whereas children in centres with fewer qualified teachers were more likely to be observed engaging in literacy and number activities in groups of three or more. Another difference was in relation to exploration activities; e.g., explorations of nature or the properties of art media (by toddlers). In centres with 50–79% qualified teachers, exploration was seldom coded when children were in groups of six or more, and solo exploration was relatively common (40% of the exploration in these centres was done alone). This balance tilted the other way in centres with 100% qualified teachers: groups were more often drawn into exploring a phenomenon. One other difference to note relates to the creative arts: a smaller proportion of children on their own engaged in these activities in the 100% centres.

‘Careful care’ was defined by the researchers as times when the target child was having a bottle or a nappy change or similar, and the staff member was focused on him or her, not multi-tasking. Naturally, it was most often observed with a child on his or her own. When ‘careful care’ happened in the context of a group (e.g., at snack times), the teacher or educator was giving 1:1 attention (otherwise we coded it as ‘careless care’). Groups associated with observations of ‘careful care’ were more often big groups in centres with 50–79% qualified teachers.

## Activities of infants and toddlers

The final table in this series, Table 33, presents information about how the target toddlers aged 2 and under, spent their day in the two categories of case study centres. We have classified the activities into two groups for these younger target children: those to do with routines for meeting their need for care (acknowledging that these times are important educationally too), and those where the toddlers were experiencing the educational programme across the centre.

TABLE 33: MAIN ACTIVITIES FOR TODDLERS BY LEVEL OF TEACHER QUALIFICATIONS

Staff Qualifications	100% qualified % of time	50–79% qualified % of time
Unstructured/waiting/watching	35	28
Care times		
Meal/food	10	15
Nap	7	8
Group	4	2
Held/careful care	6	9
Inattentive care	1	2
Education programme		
Outdoors	15	13
Creative arts	10	11
Indoors/deck	7	4
Books	5	7
Total	100	99

Toddlers in centres with 100% qualified teachers spent more time in unstructured ways, watching and waiting, than the same age group in centres with 50–79% qualified teachers. They spent less time eating than toddlers in centres with 50–79% qualified teachers. Otherwise, there were few differences between the toddlers.

When these data were looked into in more detail in the centres with 50–79% qualified staff, in order to see if their qualified teachers had different patterns of interacting with toddlers, we found that it was the unqualified staff who were interacting noticeably more with the youngest children, during *kai* times and/or having a bottle, than the qualified teachers were in either category of centre. (It was not appropriate to study the unqualified adults in the 100% centres, as there were too few of them.) We could speculate that unqualified staff are deployed to meal/foodtime more often than qualified teachers.

## Conclusions

This chapter reported on time-interval observational data focused on adult–child interactions. The researchers looked at the activities and social contexts for these interactions. Some interactions were short, and others were conversations.

In relation to the short interactions, qualified teachers had considerably higher rates of interactions with target children, particularly in the case study centres with 100% qualified teachers. In the centres with fewer qualified teachers, there were lower rates of interactions, and not much difference between qualified teachers and unqualified educators. A similar pattern was found when child-initiated interactions were studied.

When interactions in the form of conversations (or two-way non-verbal communication) initiated by adults were analysed, it was found that qualified teachers had a higher rate of conversations in both categories of centres than unqualified practitioners did. It was interesting to note that qualified teachers conversed more with babies and toddlers than with the 4-year-olds. For conversations initiated by a child, qualified teachers continued to have the highest rate of conversations, except with toddlers in centres with 50–79% qualified teachers, where unqualified teachers had more.

Qualified teachers had the highest rate of interactions with groups of three or more children. Adults spending time talking with other adults happened more often in centres with 50–79% qualified teachers, especially when they were with toddlers, than they did in centres with 100% qualified teachers.

The data about the activities where children and practitioners spend time displayed some variations in patterns. Children spent a considerable amount of time in an unstructured way or waiting or watching (over 20% of their time in both categories of centre). In centres with 100% qualified teacher, children spent more time engaged in creative activities (art, music and movement, and dramatic play) than children in centres with fewer qualified teachers. In these centres, children spent less time eating meals and snacks than they did in the centres with fewer qualified teachers.

When the data about children from different language backgrounds were analysed, for both categories of centres we found distinctive patterns of activities amongst children who spoke English and another language (not te reo Māori) at home, and children who spoke only a language other than English at home.

When the activities of the toddlers were studied on their own, there were few differences between the two categories of centres. Toddlers in centres with 100% qualified teachers had more interactions with teachers during unstructured time, and spent less time interacting with adults whilst eating food, than their peers in centres with fewer qualified teachers. It was the unqualified adults in the centres with 50–79% qualified teachers who had higher levels of interaction during meals.

## CHAPTER 9

# Child outcomes

This chapter describes the consequences of practitioner pedagogy in the two categories of case study centres: the complexity of children's play that ensues, and social-behavioural outcomes for the 4-year-old children.

## Complex play

Teachers' pedagogy makes a difference for the nature of play that occurs in early childhood education. We were curious to explore whether the teaching qualification profiles made a difference to the complexity of children's play. During the observations, the target child's play was identified as either complex or simple, according to the definition shown in the chart below, which links complexity of play to levels of cognitive challenge.

TABLE 34: DEFINITIONS OF COMPLEX AND SIMPLE PLAY

<b>HIGH COGNITIVE CHALLENGE (Complex play)</b> Child's activity is:	<b>ORDINARY COGNITIVE CHALLENGE (Simple play)</b> Child's activity is:
<ul style="list-style-type: none"><li>• Novel, creative, imaginative, productive</li><li>• Cognitively complex, involving the combination of several elements, materials, actions, or ideas</li><li>• Carried out in a systematic, planned and purposeful manner</li><li>• Structured and goal-directed — working towards some aim, whether the result is a tangible end-product or an invisible goal</li><li>• Conducted with care and mental effort; the child devotes a great deal of attention and is deeply engrossed — takes pains</li><li>• Learning a new skill, trying to improve an established one, or trying novel combinations of already familiar skills.</li></ul>	<ul style="list-style-type: none"><li>• Familiar, routine, stereotypical, repetitive, unproductive</li><li>• Cognitively unsophisticated, not involving the combining of elements</li><li>• Performed in an unsystematic, random manner with no observable planning or purposefulness</li><li>• Not directed towards a new, challenging goal, 'aimless', and without structure</li><li>• Conducted with ease, little mental effort, and not much care; the child is not deeply engrossed, his attention may not be entirely on that task</li><li>• Repeating a familiar, well-established pattern without seeking to improve upon it nor to add any new component or combination</li></ul>

Source: Sylva, Roy & Painter (1980).

## Complex play in the two categories of centres

The researchers found that the amount of time children engaged in complex play varied widely, both amongst individual children, and across the case study centres. Table 35 shows the length of time children spent in complex play in the two categories of case study centres.

TABLE 35: TIME IN COMPLEX PLAY BY LEVELS OF QUALIFIED STAFF

Range across centres	Percentage of time in complex play	
	100% qualified	50–79% qualified
Highest average centre	22.2	19.0
	14.7	10.4
	13.0	7.5
	8.5	5.0
Lowest average centre	4.7	4.3
Average	12.6%	9.2%

In two centres, one from each category, the average time in complex play by target children was 20%. The teaching staff in these two centres created environments — interactional and/or physical — that resulted in children spending this amount of time in complex play. They could thus be regarded as role models for other centres.

The definitions above indicate that children who are engrossed in complex play are probably engaged in planned and purposeful activities. These entail different dispositions from perseverance (commonly noted in New Zealand early childhood teaching and learning). In the two centres where more time was spent in complex play, thorough planning by teachers was spoken about at some length in the interviews and observed by the researchers. They were demonstrating expert ‘pedagogical knowledge’ (Fleer, 2010). We wonder, therefore, whether those ‘plan-ful’ dispositions could have been ‘caught’ from the teachers’ intentional actions (such as planning, setting out goals, and combining materials and ideas in creative ways).

The average proportion of time in complex play was higher for the centres with 100% qualified teachers. The last chapter noted that the teaching staff in these centres spent more time engaged with children in creative arts activities, and creative and imaginative activities have high cognitive challenge, (Sylva, Roy & Painter, 1980).

Most target children were engaged in complex play at times during the observations. However, in five centres, target children spent 90% or more of their time engaged in simple play. Three of these five centres had 50–79% qualified teachers.

More complex play is associated with teaching staff being more involved in sustained shared thinking with children and teacher mediation of children learning concepts. Four of the centres in which target children spent more than 10% of their time in complex play (three in the 100% qualified category and one in the 50–79% category) had higher numbers of staff engagement in interactions with more cognitive stretch (both sustained shared thinking and teacher mediation of concept development), compared with most other case study centres.

## Complex play by younger and older children

When complex play was analysed by age groups, we found that target children aged 4 and over had about two-thirds of the complex play scores; a little more if they attended a centre with 100% qualified teachers.

The individual times that target children aged 2 years and under were observed engaging in complex play ranged from none to 41 minutes. We found that the toddlers in centres with 100% qualified teachers spent a higher proportion of time in complex play (11%) than toddlers in centres with fewer qualified teachers (8%).

The analysis included the activities associated with complex play, to show what this means where toddlers are concerned. The toddlers we observed “conducted [themselves] with care and mental effort, and ... were deeply engrossed in learning a new skill or trying to improve an established one” (see Table 34). They did this when they were climbing, balancing and doing other activities involving spatial awareness; in social play (including sharing toys); painting and trying out pretend play; exploring language and books; and experimenting with nature.

The longest total time engaged in complex play recorded for an individual 4-year-old in a centre with 100% qualified teachers was 71 minutes, almost half of the observation time. In the 50–79% centres, the longest time for an individual child was 47 minutes. The older children in centres with 100% qualified teachers spent 16% of their time in complex play, a higher percentage than the older children in centres with fewer qualified teachers (10%).

## Contexts for complex play

Table 36 shows the contexts for complex play engaged in by the target children during a range of different activities. The type of activity occupying by far the highest proportion of time spent in complex play was ‘creative’; the one occupying the lowest was ‘unstructured’.

TABLE 36: TIME SPENT IN COMPLEX PLAY BY MAIN ACTIVITIES  
BY LEVELS OF QUALIFICATIONS

Staff qualifications	100% qualified	50–79% qualified
Type of activity	% of target child's time in complex play	
Creative/art/role play/music/movement	39	31
Literacy/numeracy	13	20
Outdoors play	12	15
Manipulative/constructive	9	14
Other	18	10
Unstructured/waiting/watching	7	8
Total	98	98

Table 36 shows some variations in children's chosen activities between the two categories of centres. In the centres with 100% qualified teachers, 39% of the children's time was spent in complex play that involved creative activity, compared with 31% in the other centres. (When we looked specifically at the creative arts, 31% of these activities involved complex play for target children in 100% centres, compared with 18% in the other centres.) Literacy/numeracy experiences were the next most likely activities to be associated with complex play. The balance for these experiences appears to be reversed: target children in centres with 100% qualified teachers spent 13% of their complex play time on activities associated with literacy and numeracy, whereas in centres with fewer qualified teachers, they spent 20%. However, looking specifically at literacy and numeracy activities, the picture changes. (When we looked at literacy experiences, we found that children's engagement in these activities was more likely to be complex in centres with 100% qualified teachers.)

Outdoors play and manipulative/construction activities also took up a higher proportion of the time children spent in complex play in centres with fewer qualified teachers. Once target children were engaged in outdoors play, there was little difference between the types of centres in the proportions of complex and simple play.



In relation to construction experiences involving equipment such as blocks, Lego™, Mobilo™ and so on, once target children in centres with 50–79% qualified teachers engaged in these activities more of their time was in complex play (31%) than was seen during construction by children in 100% centres (23%).

The target children spent a sizeable proportion of their day waiting, watching or doing something else that was unstructured, such as ‘cruising’ from area to area. As Table 36 shows, the researchers classified a small proportion of this time as complex play. Delving into the detail, we found time spent in complex play for unstructured activity varied very little according to level of teacher qualifications.

## Child outcomes: Social profiles and symbol system learning

When parents were asked what they hope their child will gain from their early childhood centre, they typically spoke about more independence, getting on well with other children and being ready for school. The research team identified an assessment tool that focused on most of these characteristics: the Adaptive Social Behavioural Inventory (Hogan et al., 1992, adapted by the EPPE team). The other sections in the assessment instrument for our research were developed by the research team from resources published by the Ministry of Education for assessment in early childhood education.

### Approach and instruments

Assessments of children’s outcomes were undertaken only for the 4-year-old target children, resulting in 60 of the 100 target children being assessed. As the researchers did not know the target children well, they asked the head teacher to ask the teacher or educator who knew the target child best to complete the assessment. This decision is in line with the approach taken by the Competent Children project (Wylie et al, 1996), and the EPPE project (Melhuish et al., 2001), in which the adults using the instrument had varying education and training. In our project, some centre teams chose to do them cooperatively. We did not analyse whether the assessment was completed by a qualified teacher, an unqualified educator, or a mix of the two, as it was not easy to ascertain which staff had done the assessment.

The assessment form had three sections:

- *Adaptive Social Behavioural Inventory (1992)*. The Teachers’ Work project started with the inventory used by the EPPE project (Melhuish, et al., 2001, p. 32); then some wording was adapted to conform to language commonly used in New Zealand. We also dropped headings (‘Worried/upset’ and ‘Anti-social’), but not the items. The adapted inventory was trialled in three centres in Wellington. The three clusters of items in the inventory were: Independence and Concentration (8 items), Cooperation (9 items), and Peer Sociability (14 items).<sup>7</sup> The educator who knew the child best was asked to score each item on a 4-point scale, ranging from ‘very frequently/very much like’ to ‘very infrequently/very little like’. The highest possible score on each item was 4.

<sup>7</sup> (The EPPE team clustered some of these items differently, and they did this using factor analysis. Their headings were: Independence and Concentration, Cooperation and Compliance, Peer Sociability, Anti-social, and Worried/upset. They note that Independence and Concentration can also be called Self-regulation or Self-control in the literature (e.g., Moffitt et al, 2011).

- *Knowledge about Symbol Systems.* This section drew on what is known informally as the 'four-roles model' in relation to symbol systems (oral, visual and written literacy; mathematics; the arts (music, dance, dramatic play, visual arts); and technologies for making meaning (*Kei Tua o Te Pae, Book 16*, Ministry of Education, 2009a). It sought to find out the repertoire and strengths of the target children in working with literacy and other symbols. For each symbol system, the educator who knew the target child best was asked to tick if the child took on a listening/observing role, if s/he played with them, if s/he used each for a purpose, and if s/he questioned or suggested alternative uses for them. As these four roles cannot be assumed to be hierarchical, they were given equal weight when we coded the practitioners' answers.
- *Bicultural Knowledge and Participation.* For this section, educators were asked whether the child engaged with te reo Māori and tikanga Māori and to give examples. Then they were asked to describe knowledge brought from home, whānau or iwi by the child (mōhiotanga)<sup>8</sup>, where the child is in a period of growth and learning new ideas (mātauranga), and the child's new knowledge (māramatanga). The phrases used in the open questions about bicultural participation were drawn from *Te Whatu Pōkeka: Kaupapa Māori assessment for learning: early childhood exemplars* (Ministry of Education, 2009b), a document that bilingual centres are more familiar with.
- *Aspirations.* The final question focused on the aspirations for children from *Te Whāriki*. We asked the educator for short statements to illustrate the child as a competent and confident learner and communicator. Thematic analysis was applied to this qualitative data.

Learning Stories assessment (Carr, 2001; Carr & Lee, 2012) is almost universally used in early childhood settings in Aotearoa New Zealand. Teachers seldom use scales or different assessment tools. Some teaching staff in the case study settings expressed reservations about using the scales in our assessment tools and/or about writing descriptions about children that were different from the Learning Stories genre.

## Adaptive Social Behavioural Inventory findings

Table 37 summarises the social-behavioural profile of the target children in our study who were aged between nearly 4 and 5 years. We acknowledge that a lack of familiarity and/or discomfort with this sort of tool may have influenced some teachers.

TABLE 37: AVERAGE SCORES FOR CHILDREN'S SOCIAL-BEHAVIOURAL PROFILES BY LEVELS OF QUALIFIED STAFF

	Independence/ concentration		Cooperation		Peer sociability	
	100%	50–79%	100%	50–79%	100%	50–79%
Average scores	23.3	22.3	27.8	29.5	31.5	32.4

Overall, the proportion of qualified staff in the case study centres made no significant difference to the children's social capabilities. We checked whether being just 4 versus being almost 5 made a difference, but it did not.

<sup>8</sup> The research team was advised later that this is a very limited perspective of *mōhiotanga*. The responses by speakers of te reo Māori shared later in the chapter offer a fuller picture.

Average scores were highest for peer sociability (e.g., child joining games, getting others to pay attention, being confident with people, not being worried). The results were very similar for the children in the centres with 100% qualified teachers and those in centres with fewer qualified teachers. The centres with 50–79% qualified teachers had a slight edge over those with 100% qualified teachers. Those centres were even stronger on engendering cooperative behaviour (e.g., child can work easily in a small peer group, shares toys and possessions, tries to be fair in games). The centres with 100% qualified teachers had a slight edge over centres with 50–79% qualified teachers for independence and concentration (e.g., can independently select and return equipment as appropriate, thinks things out before acting, and sees tasks through to the end).

One reason that the longitudinal EPPE project advocates for assessing children's social competence and behaviour is to identify early those children who are, in their words, "vulnerable to poor social development", so that early childhood education can foster better social development. Their results showed that these measures were predictive of cognitive outcomes, and that "integrated centres, nursery classes and playgroups show the most positive movement for the social/behavioural outcome of Peer Sociability" (Taggart, 2010, p.181). Identification of additional needs and early intervention seldom arises in the discourse about assessment in Aotearoa New Zealand early childhood education. Identity and dispositional learning is the norm (Carr & Lee, 2012).

Our findings indicate that early childhood teachers' attention to children's sociability and their use of positive guidance to support children's cooperative contributions is having impacts across diverse centres. The Well-being (Mana Atua), Belonging (Mana Whenua) and Contribution (Mana Tangata) strands and goals, and the Relationship principle (Ngā Hononga), in *Te Whāriki* foreground social competence teaching and learning. Moreover, in their interviews, most head teachers in the 50–79% qualified teachers' category emphasised child socialisation in describing important features of their centre philosophy.

## Findings related to participation and repertoires of knowledge about symbol systems

Most educators doing the assessments said that the target 4-year-olds observed and used the various symbol systems in their play. Using them for a purpose and/or using them in alternative/creative ways were less often noted; hence few scores approached the maximum of 4.

TABLE 38: SYMBOL SYSTEM PARTICIPATION OF YOUNGEST AND OLDEST 4-YEAR-OLDS BY LEVELS OF STAFF QUALIFICATIONS

Staff quals	Literacy		Mathematics		The Arts		ICT		Totals	
	100%	50+%	100%	50+%	100%	50+%	100%	50+%	100%	50+%
Youngest	2.6	2.8	2.0	2.6	2.2	3.0	2.8	3.2	2.4	2.9
Oldest	3.2	3.2	3.0	3.2	3.2	2.8	2.4	3.4	3.0	3.2
Whole sample average	2.5	2.7	2.7	2.8	2.5	2.7	2.5	3.0	2.6	2.8

Overall, the proportion of qualified teachers in the centres did not make any significant difference to the extent of participation in the symbol systems for the four knowledge areas. Children closer to age 5 were stronger than those who had just turned 4 years old in most centres. Centres with 50–79% qualified teachers on average have a very slight edge over the centres with 100% qualified teachers, with more of a gap in relation to ICT.

## Findings related to the target children's participation in a bicultural world

As a bicultural curriculum document, *Te Whāriki* acknowledges and promotes children's engagement with te reo Māori, tikanga Māori and mātauranga Māori. Under the heading 'Ways of Knowing', educators in the case study centres were asked a series of open-ended questions about the child's engagement in bicultural practices, e.g., practise tikanga Māori and use te reo Māori.

The Ways of Knowing section of our research tool was interpreted in a variety of ways by teachers who undertook the assessment of child outcomes across the case study centres, suggesting a wide difference in understanding of the bicultural practices involved, even though the large majority of centres had a sentence making a commitment to Te Tiriti o Waitangi in their statements of philosophy. In centres where the commitment was not stated, or was less explicit, especially in the centres with 100% qualified teachers, teachers' responses simply restated that centre's curriculum emphases.

Of note is the fact all 4-year-old children in the study whose social profiles were completed had examples of their learning, knowledge and competence provided by the practitioners. These were often from a Western interpretation of 'knowledge', for example, counting in Māori. There were six non-responses to the tikanga Māori questions and four to the question about use of te reo Māori, all from the centres with 100% qualified teachers. On closer examination of the data, it would seem that teachers who did not respond to the question relating to tikanga Māori recognised that they did not understand the question. An indication of this was the number of teachers whose answers to this question were more about te reo Māori than tikanga Māori (see examples below).

All of the 100% case study centres said that all target children used te reo Māori. From our days of observation in the centres, we question the validity of this statement. In two of these centres the teachers unpacked their answer, and said the children used te reo Māori in group situations only, such as when the teacher was counting, leading waiata or mat times. Examples from these case study centres suggest children use very basic reo, such as: 'Refers to hat pōtai [sic], kai table, can count in Māori [sic]; knows some Māori songs' [sic]. The other three centres with 100% qualified teachers had a greater awareness of levels of language acquisition and were more specific in their responses; for example:

She uses more commands rather than off the top of her head ... can sing and knows the karakia well; single adjective words; through songs in te reo Māori and our karakia at meal times, but not used incidentally.

Just one target child outside the bicultural centre with 100% qualified teachers was said to have more advanced skills: 'Good pronunciation, uses single words, and can copy a sentence'.

In the case study centres with 50–79% qualified teachers, there were five target children whom educators said did not use te reo Māori, with a further three target children reported to use te reo Māori 'sometimes'. Four of these children were children in the bicultural centre, and definition of 'use' by kaiako was probably 'use te reo in conversation'.

As noted above, the tikanga Māori question was interpreted in different ways by the teachers. In four of the case study centres (two with 100% qualified teachers and two with 50–79% qualified teachers), staff gave examples of children practising tikanga Māori that involved 'counting, use of single words, or singing Māori songs'. This suggests that teachers had confused tikanga Māori and te reo Māori. On the other hand, there were two centres in both groups which provided very specific examples of tikanga Māori that indicated a deeper understanding.

Some differences noted between the case study centres with 100% qualified teachers and those with 50–79% qualified teachers were better explained by the centres' stated commitment to Te Tiriti o Waitangi or philosophy than by their levels of qualified teachers. These differences focused around Mātauranga Māori (knowledge). In centres with 100% qualified teachers, responses to the question about 'Knowledge from home and whānau<sup>9</sup> (mōhiotanga)' tended to be about artefacts or things, such as toys that were brought in to share, or about experiences that happened in the holidays/weekends which were woven into the planned programme. Some responses came from a different perspective, e.g., 'knowledge of older people'. The centres with 50–79% qualified teachers, in contrast, more often described shared information that focused on relationships, and stories from home that involved family/whānau members, such as 'sharing about a new baby brother; Mum is in the catering business...[child] is knowledgeable about food'. Often these responses involved personal qualities such as leadership (mentioned a number of times), or 'a strong sense of self, mediator between friends in the centre', or 'has a strong family connection and is knowledgeable about family relationships'.

The responses to the question on 'where the child was in a period of new growth or learning (mātauranga)' and 'new knowledge (māramatanga)' reflected a similar difference in philosophy/programme approach. Some centres tended to focus on individual skills and reflected the centre's programme emphasis, such as literacy skills or children's individual progress with social skills. Centres in which there was a stronger bicultural focus were more likely to describe children's learning strategies and had a stronger focus on the collective/group.

## Findings from the two bicultural case study centres

Both categories of case study centres had one centre with an explicit bicultural focus. The following discussion focuses on the implementation of bicultural practices in these two centres.

The bicultural centre in the 100% qualified teachers' category was described during their interview as a 'bicultural kaupapa Maori early childhood education centre', in which the majority of the kaiako are Māori. The philosophy statement of the bicultural centre with 50–79% qualified teachers had a stated commitment to Te Tiriti o Waitangi 'through bicultural practices'. It was described during the interview with their senior management as "a kaupapa Māori centre which is not just about speaking some te reo Māori". As expected, kaiako in both of these centres approached the description of children's engagement in te āo Māori from an holistic perspective. Excerpts from their responses to the question, 'Does the child practise tikanga Māori (tikanga whakaaro)?' included:

[Target child] participates in karakia, karanga mo te kai and mihimihi. She does kapahaka, attends pōwhiri. [Target child] participates in role play in making the hangi. [Target child] respects and practices [tikanga] with guidance, e.g., removing shoes when entering the centre. [Target child] is very helpful and supportive when playing with other children.

Examples of 'the knowledge the child has brought with her or him from home/community/whānau/whakapapa into his/her learning at the centre recently (mōhiotanga)' focused on whanaungatanga:

[Target child] brings a lot of aroha from home ... willing to listen to the ideas of other children and how they feel. [Target child] shares whānau news and outings at panui times. [Target child's] family visited Hatupatu's rock in Rotorua. [Target child] helped design a bird woman's cape in the centre. She has an understanding of friendship, taking turns, fairness. [Target child] shows creativity and leadership. He is caring for younger children.

9 We acknowledge in hindsight the limitations of our translation of *mōhiotanga*.

One question asked, 'Where is the child in a period of growth, and learning new ideas (mātauranga)?' Responses tended to focus on learning strategies or relationships rather than discrete knowledge; for example:

[Target child] enjoys trying new things. He sometimes needs a little encouragement. [Target child] is open to learning.

In terms of 'Demonstration for new knowledge (māramatanga)', a theme in the answers was the focus on the group as well as the individual:

[Target child] talked about the life cycle of the butterfly. He is good at re-telling a story; he retold the story of Maui and the Kingfish. [Target child's excitement — he wants to share it [new knowledge] with others; sharing ideas and thoughts.

### Aspirations for the target children

To round off the assessment, the final question focused on the aspirations for children from *Te Whāriki*. We asked for two examples illustrating the child as a confident and competent learner and communicator. Practitioner responses to this include:

She can confidently have a conversation with an adult.

When he is involved in helping activities he makes sure he helps till the end.

A sensitive child, willing to support and help his peers ... includes other children in his play.

He is able to wait his turn ... great motor skills.

Having listened to the story of 'Hatupatu's Rock' and viewing it on the laptop, [target child] was very confident to stand up in front of friends and act out the part of Hatupatu. He recalled all the things/actions that Hatupatu did in the story.

It was difficult to find any themes in the responses. However, we noticed that kaiako in the bicultural centres were more likely to emphasise the child's contribution to the group than teachers in other centres did.

### Conclusions

The average time spent in complex play was higher in centres with 100% qualified teachers than in centres with fewer qualified staff. Teaching staff in the 100% centres spent more time with children and activities that involve high cognitive challenge; namely, creative, imaginative play.

There was little to distinguish the two categories of case study centres in the outcomes measures chosen for this study: social competence and behaviour, and repertoires in using symbol systems. Only four centres (including three with 100% qualified teachers) provided the conditions where children spent more than 10% of their time in complex play. These centres also had higher amounts of teacher engagement in sustained shared thinking and teacher mediation (see Chapter 10).

Looking at the social-behavioural profiles of the 4-year-old children, the centres with 100% qualified teachers had a slight edge in relation to independence/concentration (also known as self-control or self-regulation in other studies); but the centres with 50–79% qualified teachers had higher scores for children's cooperation (something their head teachers said in their interviews that they emphasise). For peer sociability, the centres with 50–79% qualified teachers had a slight edge over the centres with fully qualified teams.



The findings related to the target children's roles in participating with symbol systems also showed children's scores being slightly higher on average in the centres with 50–79% qualified teachers. Age, however, mattered more, that is being close to age 5, which is to be expected.

Another outcome studied was the target children's participation in te ao Māori. There were more non-responses and misunderstandings about tikanga Māori evident in the responses from teachers in centres with 100% qualified teachers than in centres with 50–79% qualified teachers. The explanation for this seemed to be related to lack of Māori and/or te ao Māori knowledge in centres with 100% qualified teachers, compared with the number of Māori in leadership positions in the centres with fewer qualified teachers, and their stronger commitment to Te Tiriti o Waitangi.

In bicultural centres, kaimahi and parents/whānau had shared aspirations about children's identity as Māori, and shared funds of knowledge, including of te reo Māori, which showed up in the different quality of responses from them to our questions with a bicultural focus.

The undifferentiated outcomes findings were unexpected. However, subsequent discussion of the small differences between the two categories of case study centres has suggested some reasons. They include:

- insufficient development time for the tool we adopted and designed;
- the introduction of some measures focused on individuals (psychological rather than socio-cultural) in a time period when sociocultural discourses prevail;
- some items with deficit language (when practitioners in Aotearoa New Zealand emphasise credit-based assessment);
- a wide range of practitioners providing the assessment of outcomes, with insufficient professional guidance given to them about the use of research tools and indicators;
- insufficient time available for teachers and educators to build up notes to inform their ratings of the target children on indicators they may not have thought much about;
- less practitioner knowledge of the frameworks in *Kei Tua o Te Pae* and *Te Whatu Pōkeka* than the researchers assumed; and
- the challenge the sector faces of developing tools for assessing child outcomes that are compatible with *Te Whāriki*, with its emphasis on holistic development and sociocultural learning.





## CHAPTER 10

# Pedagogy and children's thinking

This chapter focuses on pedagogy that has been shown to have an impact on children's cognitive development, that is, practices where the teacher or educator is thinking about children's thinking and acts to extend their knowledge and understanding. The constructs used are called 'sustained shared thinking' (Siraj-Blatchford, 2010) and 'teacher mediation of concept development' (Fleer, 2010). On the occasions when a researcher could ask a practitioner about her or his thoughts when an interaction with a child was of longer duration than the typical brief interactions, and/or had noticeable conceptual content, the staff responses always indicated intentional teaching.

## Sustained shared thinking and teacher mediation of concept development

At the end of each target child observation period of 8 minutes, the observation script was examined for confirmation of any episodes of two related concepts: sustained shared thinking (Siraj-Blatchford, 2010) and teacher mediation of concept development (Fleer, 2010). In our event records, sustained shared thinking was typically a longer episode, and researchers had to consider that both parties had contributed to the thinking; whereas in recording teacher mediation of concept learning, we accepted incidents when teaching staff offered information about a concept, but the child may not have given it any thought.

## Findings related to sustained shared thinking

### Definition of sustained shared thinking

The definition for sustained shared thinking used in this study was adopted from the EPPE longitudinal study in England. Siraj-Blatchford (2010) says that the EPPE research team defined sustained shared thinking as:

Instances where two or more individuals 'work together' in an intellectual way to solve a problem, clarify a concept, evaluate activities, or extend a narrative. Both parties must contribute to the thinking and it must develop and extend thinking. (p. 175)

In a keynote address in New Zealand, Siraj-Blatchford (2011) commented that sustained shared thinking is hard to attain. Her slides of UK centres showed that episodes occurred in about 10% of the observations in the excellent centres, and about 7% of the observations in the good centres. Open-ended questions, which often stimulate sustained shared thinking, were also low in frequency (noted in around 5% of the observations).

## Episodes of sustained shared thinking

There were 101 episodes of sustained shared thinking observed in the 10 New Zealand case study centres. The number of sustained shared thinking episodes in the centres was low when the total number of 8-minute target child observations (1,374) is taken into account (giving a frequency of 7.4%).

TABLE 39: EPISODES OF SUSTAINED SHARED THINKING BY AGE GROUP  
IN CASE STUDY CENTRES WITH 100% QUALIFIED TEACHERS

Age group	Kaka		Kakapo		Kereru		Piwakawaka		Tui		Total	
	Qualified	Unqualified	Qualified	Unqualified*	Qualified	Unqualified	Qualified	Unqualified*	Qualified	Unqualified	Qualified	Unqualified
2 years and under	0	0	1	0	3	0	9	3	0	0	13	3
4 years and over	5	0	3	1	8	0	16	2	8	0	40	3
Total	5	0	4	1	11	0	25	5	8	0	53	6

\* Includes relievers who are unqualified, students, and unqualified supernumerary staff.

TABLE 40: EPISODES OF SUSTAINED SHARED THINKING BY AGE GROUP  
IN CASE STUDY CENTRES WITH 50–79% QUALIFIED STAFF

Age group	Kauri		Kowhai		Pohutukawa		Rata		Totara		Total	
	Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified
2 years and under	1	0	0	0	5	0	10	0	4	2	20	2
4 years and over	5	1	0	0	4	4	5	1	0	0	14	6
Total	6	1	0	0	9	4	15	1	4	2	34	8

Overall, two centres (Piwakawaka and Rata) accounted for nearly half of the total episodes of sustained shared thinking. Piwakawaka also had the highest number of episodes with target under 2s. In one centre, Kowhai, no episodes of sustained shared thinking were observed. A further five centres had eight or fewer episodes.

There were 59 episodes of sustained shared thinking in the five centres with 100% qualified teachers, compared with 42 episodes in the five centres with 50–79% qualified teachers. Tables 39 and 40 show the variance across the individual case studies.

In the centres with 50–79% qualified teachers, numbers of unqualified staff ranged from 21% up to 50%. In some of the centres with 100% qualified teachers, observations also covered small numbers of unqualified staff: additional part-time educators in training, and student teachers or relievers. Because of the much lower proportions of unqualified staff in the 100% case study centres, it is not appropriate to compare episodes of sustained shared thinking involving unqualified educators across the two categories of centres. However, it should be noted that in the five case study centres with 50–79% qualified teachers, 81% of the episodes of sustained shared thinking occurred between a target child and a qualified teacher.

Seven centres demonstrated sustained shared thinking between teaching staff and target under 2s<sup>10</sup> children. Three centres had no episodes of sustained shared thinking for these younger children.

<sup>10</sup> This group included children who were aged 12–30 months.

In four case study centres (two from each category), all or most of the target children were involved in at least one episode of sustained shared thinking. In five case study centres (four of which had 50–79% qualified staff), less than half of the target children were involved in episodes of sustained shared thinking.

## Contexts associated with sustained shared thinking

The environmental and social contexts for this effective pedagogy were explored. Data for unqualified educators in centres with 100% qualified teachers are not included as there were very few of them, and mostly they were student teachers or relievers.

TABLE 41: MAIN AREA BY SUSTAINED SHARED THINKING  
BY LEVEL OF TEACHER QUALIFICATIONS

Staff Qualifications	100% qualified		50–79% qualified		
Activities	% of target child's time		% of target child's time		
	Yes, with QT	No	Yes, with QT	Yes, with UQ	No
Unstructured/waiting/watching	10	25	14	7	23
Creative/art/role/music	18	16	14	33	15
Playground/climb/swing/ball etc	11	12	7	0	13
Group/mat	5	8	0	0	5
Literacy/numeracy/puzzles	8	7	36	22	8
Meal/food	8	8	5	6	12
Manipulation/construction/blocks/hammers	11	5	2	0	4
Other*	29	19	22	32	20
Total	100	100	100	100	100

\* Other includes holding, careless care, careful care, exploration, water/foam/gloop, sand, exploration, nap/rest, science/nature/baking, mini toys/marbles, dough/clay/sensory/self-care by 4 year olds, incomplete observations and other–undefined.

Table 41 shows the activities that target children were engaged with when they and adults were jointly involved in 'sustained shared thinking'. In case study centres with 100% qualified teachers, episodes of sustained shared thinking were observed most often during creative activities. The percentage of time when sustained shared thinking episodes were associated with outdoor playground and with manipulative/construction activities was the same for both (11%).

In case study centres with fewer qualified teachers, the episodes of sustained shared thinking were observed most frequently at activities with a literacy/numeracy function. A high 36% of episodes of sustained shared thinking with qualified teachers were associated with these activities, many in connection with their planned sessions for 4-year-olds. Unqualified educators in this category of centres were more likely to engage in sustained shared thinking with children in association with creative arts activities.

The finding that sustained shared thinking episodes occurred during unstructured time was unexpected. Looking over the notes on the observation schedules, we learned more about these occasions. When a target child was pottering alone and near — or perhaps helping — a teacher or educator who was tidying or setting up the environment, they had conversations about previous happenings at the centre or about family and whānau that stretched the child's thinking. For example, on one such occasion, a child talked about an elderly member of his whānau getting her driver's licence recently, and the teacher helped him work out what 'great grandparent' meant. She extended the narrative and his thinking.

Next in the analysis process, we compared sustained shared thinking by qualified teachers and unqualified staff during unstructured/waiting times in the five centres with 50–79% qualified teachers. We found that unqualified educators had more such conversations on those occasions. (Perhaps this relates to the finding that they do more tidying?) Our observations showed that unqualified educators and children in that category of centre also engaged in more sustained shared thinking together at meal times than qualified teachers and children did.

### Who initiated?

Another line of inquiry in analysing our observational data was about who was initiating adult–child sustained thinking times: a target child or an adult? The researchers only specifically noted who initiated in relation to conversations, not in relation to sustained shared thinking episodes. However, the database allowed us to link observations of conversations with episodes of sustained shared thinking. So NZCER's statistician linked them, and her analysis revealed more about these educative interactions.

Across all case study centres, we found that qualified teachers started more conversations connected to episodes of sustained shared thinking than the target children did with them: 73, compared with 47 initiated by a target child. Unqualified educators initiated nine conversations with target children which were connected to episodes of sustained shared thinking, and the target children initiated only eight such conversations. Thus, qualified teachers play a lead pedagogical role in relation to this practice, which has strong predictive value for child outcomes.

Next, these data from case study centres with 100% qualified teachers were compared with the data from centres with fewer qualified teachers. Some differences were revealed.

TABLE 42: INITIATION OF CONVERSATIONS LINKED TO SUSTAINED SHARED THINKING BY LEVELS OF QUALIFICATIONS

Staff qualifications	100% qualified		50–79% qualified			
Numbers of conversations in child observations linked to sustained shared thinking						
	QT		QT		UQ	
Teacher-initiated conversations	45	57%	28	68%	6	55%
Child-initiated conversations	34	43%	13	32%	5	45%
Total	79	100%	41	100%	11	100%

The raw data also showed the number of observation time-slots for which conversations and sustained shared thinking were connected. For qualified teachers, they were often linked for all 8 minutes of an observation round, whereas for unqualified educators, they were linked for 2 minutes of an 8-minute round.

When age was considered, it was necessary to analyse the data for all centres, as the numbers of children aged 2 years and under taking part in conversations connected to sustained shared thinking episodes were too small.

TABLE 43: INITIATION OF CONVERSATIONS LINKED TO SUSTAINED SHARED THINKING BY AGE BY ADULTS' QUALIFICATIONS

Staff	Qualified teachers	%	Unqualified educators	%
Numbers of conversations observed linked to sustained shared thinking				
2 years and under				
Adult-initiated conversation	24	28	2	24
Child-initiated conversation	10		2	
	34		4	
4 years and over				
Adult-initiated conversation	49	72	7	76
Child-initiated conversation	37		6	
	86		13	
Total	120	100	17	100

Table 43 shows that for both the toddlers and the children aged 4 years and over, qualified teachers initiated more conversations connected to sustained shared thinking episodes than the unqualified staff did. The target children seemed to recognise this, as they initiated more conversations with more intellectual 'stretch' with qualified teachers than they did with unqualified educators.

The comparison of the two categories of staff is instructive: unqualified educators demonstrate minimal expertise in initiating conversations that extend children's thinking.

## Sustained shared thinking with infants and toddlers

For the under 2s, sustained shared thinking took place during routines as well as in 'free' play, and covered a breadth of curriculum foci. Some examples focused on cognitive challenge, such as completing a puzzle or joint attention in reading a book:

Target child finds a puzzle piece under a chair. The qualified teacher praises her. She sits at the table and adult and child work on a puzzle together. The teacher observes closely as [child] perseveres with the challenge of doing it. The teacher mirrors target child's pleasure at her success. (Rata)

Other episodes involved the extension of a narrative about family/whānau and connected to the child's sense of identity, for example:

A target child and a qualified teacher had a conversation where the child was talking about family members and the teacher was repeating what the child had said to confirm meaning and using questions to continue the conversation on the topic. Both the teacher and the target child were contributing to the conversation about the child's family members and what relationship they were to the child. (Kauri)

A number of episodes with younger children were associated with 'how to be' during routines such as nappy changing. The examples include:

A toddler was exploring a medical kit. An unqualified educator invited him to come for a nappy change and to bring the stethoscope along too. The educator alternately described the sequence of the nappy change (up the steps, fresh nappy and lift your bottom), and responded to his question about the word for the stethoscope and language (doctor) and home. She was attuned to his questions and conversation cues about the doctor's gear. (Tui)

A qualified teacher asks a target child to find another child's shoe. The teacher is dressing the child. The target child initially finds gumboots, looks at them, then goes to look for the

child's shoes. The target child finds the shoes then holds them up to the teacher. Together the teacher and the target child put the shoes on the child being dressed. The target child holds the top of the child's foot and eases the shoes on while the teacher talks them through the process, 'Push, push ... all toes inside ...' (Pohutukawa)

Other examples are of a teacher supporting a child through a 'zone of proximal development', or moments of shared joy.

A target child was trying to work out how to dispense tape without tangling the tape in her fingers. The qualified teacher stepped the child verbally through modelling the process until she managed this alone. The child continued to repeat the dispensing of tape and sticking of tape onto paper for some time. Concentration was intensive. The child then explored the wearing of tape on her mouth. (Kakapo)

A qualified teacher played alongside the toddler for several minutes, and reflected target child's actions in words — she named the colour of the objects he was choosing and the movement of the water wheel as he poured: 'It's going round and round; it's spinning.' (Rata)

A qualified kaiako was playing with an infant, gently letting a silk scarf fall and move on his skin. Different sensory experiences with the scarf were provided over several minutes. To add some novelty, the kaiako tempted the target child to look at another child so that the timing of scarf sensation would come as a surprise. (Kereru)

## Sustained shared thinking with children aged 4 and over

Self-care routines such as getting dressed and shared narratives about family also provided a context for sustained shared thinking between a qualified teacher and the older children.

A target child shadows a qualified teacher as she tidies and re-sets indoors. They talk and reminisce about what the 4-year-old used to be like when he was a baby. (Rata)

A number of the examples from the target children aged 4 include engagement in science, construction, art, music, ICT, mathematics, and print literacies:

An unqualified educator is working with a group of children. They are having a music jam session. A target child joins the session, copying the rhythms the adult is beating out on drums, making beat patterns with the drums and sticks. The target child copies then starts to work out his own rhythms. The educator watches and listens to the target child then follows the child's lead. They talk about sounds and patterns, listening to see if each reflects the other. (Pohutukawa)

The target child was working on the computer, with support from an unqualified educator, for more than 5 minutes. He wanted to add his name. The educator found his name card and supported target child to copy each letter from the card into his work on the computer, matching letter by letter to the keyboard. When it was done, she reminded him how to save his computer file. (Rata)

Role and fantasy play was a feature of a number of these episodes:

A student teacher together with a group of children, including a target child, developed a fossil hunting activity. The student teacher adopted the role of palaeontologist to take the children on a journey using a map discussed and worked out by the children. The hunt also incorporated a treasure hunt for bones, digging for bones then cleaning of bones in a 'laboratory' set up for this purpose. (Kakapo)

Problem solving was more prevalent amongst older children than in the examples of sustained shared thinking with infants and toddlers. Problem solving episodes included the following:

A 4-year-old boy is with a large group that is making soda and vinegar volcanoes in the sandpit. The qualified teacher reminds the target child to wash the mix off his hands and to wipe his face with a cloth. She mainly talks about the bubbling mix, and the smell. When she asks the group to predict what will happen, target child replies: 'The "volcano" will blow up. BOOM. It will crash and blow up me.' Together they are talking/thinking about the volatility of mixtures, including what happens in real volcanoes. (Kereru)

A plank became stuck in a rocker. The qualified teacher supported the target child and another child to try different possible tactics to solve the problem of how to dislodge the plank, without giving the boys explicit instructions about what to do. With encouragement, they eventually freed the plank. (Tui)

A target child was trying to make a paper dart and asked for a teacher's help. Together they worked through the process of making the dart, working out the different ways the paper should be folded. The qualified teacher provided verbal scaffolding, suggesting options and asking open-ended questions, with the child trying different ways and checking in, 'Is this how you do it?' (Pohutukawa)

A qualified teacher is scaffolding a small group of children playing a game with a marble and block ramps. The teacher is aware it is the target child's turn and supports her to get the marble from another child, and prompts the target child to have a second turn. The teacher suggests options for making further ramps: 'Make a tower.' It ends up being too steep. The teacher restrains others who want to intervene, and she suggests to the target child, 'Try making it the right height.' (Piwakawaka)

This last example lasted for more than 8 minutes, with the teacher and child thinking together. It also illustrates the teacher guiding the girl to think conceptually about the 'height' of the structure in relation to the 'slope' of the ramp, so as to achieve a marble run that works as intended.

## Findings related to teacher mediation of concept development

### Definition of teacher mediation of concept development

The researchers drew on Fler's (2010) book on 'conceptual play' practice to draw up a definition of teacher mediation to guide our observations of the role of teachers in children's concept development:

Mediation is where the teacher is an active agent who by framing, is helping a child with concept formation or consolidating a concept. It is more than simply interacting with a child. (Researchers' definition)

Our definition of teacher mediation differed from what Marilyn Fler calls 'conceptual play', where practitioners conceptually frame play for children to consciously think about a concept that had been introduced. As stated earlier, we captured episodes when teaching staff introduced an everyday or scientific concept as they talked with children, but the children might or might not have consciously thought about it at the time.

The numbers of episodes of teacher mediation of concept development are shown in the following tables.



TABLE 44: NUMBER OF EPISODES OF TEACHER MEDIATION BY AGE GROUP IN CASE STUDY CENTRES WITH 100% QUALIFIED TEACHERS

		Kaka		Kakapo		Kereru		Piwakawaka		Tui		Total	
Age group		Qualified	Unqualified	Qualified	Unqualified*	Qualified	Unqualified	Qualified	Unqualified*	Qualified	Unqualified	Qualified	Unqualified
2 years & under		10 28%	3 33%	9 41%	2 40%	1 10%	0	11 32%	2 50%	22 37%	0	53 33%	7 39%
4 years & over		26 72%	6 67%	13 59%	3 60%	9 90%	0	23 68%	2 50%	38 63%	0	109 67%	11 61%
Total 100%		36 100%	9 100%	22 100%	5 100%	10 100%	0 100%	34 100%	4 100%	60 100%	0 100%	162 100%	18 100%
No. of 8 minute observations	2 years & under	72		52		81		51		48		204	
	4 years & over	106		76		88		78		87		435	

Note: Percentages add up to 100% for the two age groups of children.

\* Kaka and Piwakawaka are centres with 100% qualified teachers as well as additional part-time educators in training, and other unqualified educators who were student teachers or relievers. Observations covered all these staff.

TABLE 45: NUMBER OF EPISODES OF TEACHER MEDIATION BY AGE GROUP: 50–79% CASE STUDY CENTRES

		Kauri		Kowhai		Pohutukawa		Rata		Totara		Total	
Age group		Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified
2 years & under		6 35%	3 75%	10 44%	3 75%	2 15%	3 37%	7 54%	2 67%	0	5 63%	25 34%	16 59%
4 years & over		11 65%	1 25%	13 56%	1 25%	11 85%	5 63%	6 46%	1 33%	7 100%	3 37%	48 66%	11 41%
Total 100%		17 100%	4 100%	23 100%	4 100%	13 100%	8 100%	13 100%	3 100%	7 100%	8 100%	73 100%	27 100%
No. of 8 minute observations	2 years & under	59		47		69		70		55		300	
	4 years & over	73		72		97		102		91		435	

Overall, 280 episodes of teacher mediation of concept development were observed; 180 (64%) of these occurred in the five centres with 100% qualified teachers, and 100 (36%) occurred in centres with 50–79% qualified teachers. Across the five 100% qualified teachers' case study centres, the range in number of episodes was wide (see Table 44), from a high 60 episodes in Tui to a low 10 episodes in Kereru; the remaining three centres in this group had between 27 and 45 episodes of teacher mediation. In the centres with 50–79% qualified teachers, the highest number of episodes in any one centre was much lower, at 27, and the range across centres was narrower.

Unqualified staff in both Pohutukawa and Totara had twice as many episodes of teacher mediation of concepts as the other three case study centres with fewer qualified teachers.

Again, it is not meaningful to make a comparison across the two categories of case studies in terms of the differences in numbers of episodes of teacher mediation of concepts for unqualified staff. However, a comparison of qualified and unqualified staff is provided for the centres with 50–79% qualified teachers in Table 46.

TABLE 46: NUMBER OF EPISODES OF TEACHER MEDIATION BY STAFF QUALIFICATION AND CHILDREN'S AGE GROUP IN CASE STUDY CENTRES WITH 50–79% QUALIFIED TEACHERS

		Kauri		Kowhai		Pohutukawa		Rata		Totara		Total	
Age group		Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified	Qualified	Unqualified
2 years & under		6 66%	3 33%	10 77%	3 23%	2 40%	3 60%	7 78%	2 22%	0	5 100%	25 61%	16 39%
4 years & over		11 92%	1 8%	13 93%	1 7%	11 69%	5 31%	6 86%	1 14%	7 70%	3 30%	48 81%	11 19%
Total 100%		17 81%	4 19%	23 85%	4 15%	13 62%	8 38%	13 81%	3 19%	7 47%	8 53%	73 73%	27 27%

No. of 8 minute observations	2 years & under	59	47	69	70	55	300
	4 years & over	73	72	97	102	91	435

Note: percentages in each centre add up to 100%

In the centres with 50–79% qualified teachers, there was a greater likelihood of qualified teachers mediating concept development with the target children than of unqualified educators doing so, with the exception of Totara, where the number of episodes were more or less evenly spread between qualified teachers and unqualified educators.

The majority of episodes of teacher mediation of concept learning occurred with the target children aged 4 and over. In the 100% qualified case study centres, 67% of teacher mediation of concepts were with this age group, compared with 59% in the centres with 50–79% qualified teachers. Teacher mediation of concepts with the younger target children was highest in one of the case study centres with 100% qualified teachers, Tui, which had twice as many episodes as any other centre. The interview data about planning (see Chapter 6) revealed that this centre had very thorough planning, which was made visible to teachers, parents and children on a wall. This suggests that the qualified teachers' planning documentation helped their knowledge of each child's thinking; and the team's knowledge of the children's content interests was made visible both to each other and to parents. This knowledge helped the adults and children 'build towards conscious realisation of concepts in culturally meaningful situations' (Fleer, 2010, p. 42). They were thus better able to extend children's concept development. This is similar to findings from research focused on children's schema learning as well (Athey, 2007; Meade & Cubey, 2008).

It is interesting to note that across the centres, there were more episodes of unqualified educators mediating concept development with infants and toddlers than with 4-year-olds. This possibly reflects the deployment of larger numbers of unqualified educators with the youngest children.

### Contexts associated with teacher mediation of concept learning

In this section, the physical environment (activities) and social contexts where teacher mediation of concept development took place are examined.

TABLE 47: MAIN ACTIVITIES BY TEACHER MEDIATION BY LEVEL OF TEACHER QUALIFICATIONS

Staff Quals	100% qualified		50–79% qualified		
Activities	% of target child's time		% of target child's time		
	Yes, with QT	No	Yes, with QT	Yes, with UQ	No
Unstructured/waiting/watching	21	25	23	15	23
Creative/art/role/music	16	16	24	21	14
Playground/climb/swing/ball/sand	13	11	6	6	13
Group/mat	7	8	4	0	5
Literacy/numeracy/puzzles	6	8	23	9	8
Meal/food	10	7	5	21	12
Manipulation/construction/blocks/hammers	9	5	6	6	4
Other*	18	20	9	22	21
	100	100	100	100	100

\* Other includes holding, careless care, careful care, exploration, water/foam/gloop, sand, exploration, nap/rest, science/nature/baking, mini toys/marbles, dough/clay/sensory/self-care by 4 year olds, incomplete observations and other–undefined.

When the teaching staff take the opportunity for one-to-one conversations around, say, looking after the centre environment, or caring for another child, they can enhance children's understanding of mathematical, science or social concepts. Table 47 presents activities associated with teacher mediation of learning. It shows that unstructured time provides an ambience that facilitates adult–child interactions in both categories of case study centres: more than 20% of such interactions take place during this activity.

In the centres with 100% qualified teachers, mediation of concept development by a qualified teacher was relatively high during creative arts activities and outdoors activities (such as in the sandpit).

In the centres with 50–79% qualified teachers, the pattern was different. The qualified teachers were more active in mediating children's learning in association with literacy and number activities, as well as during creative arts times. Comparing the two types of staff, in these five centres qualified teachers were more likely than the unqualified educators to mediate learning during literacy and numeracy activities. Unqualified educators mediated children's learning more often during meal/snack times.

TABLE 48: MAIN AREA BY TEACHER MEDIATION BY LEVEL OF TEACHER QUALIFICATIONS

Staff Qualifications	50–79% qualified		
Activities	Main area by mediator		
	Yes, with QT	Yes, with UQ	Total
Unstructured/waiting/watching	79	21	100
Creative/art/role/music	74	26	100
Playground/climb/swing/ball, sand, etc	71	29	100
Group/mat	100	0	100
Literacy/numeracy	86	14	100
Meal/food	36	64	100
Manipulation/construction/blocks/hammers	71	29	100

Table 48 compares teacher mediation by qualified teachers and unqualified educators, activity by activity, in the centres with 50–79% qualified teachers. (It was not appropriate to include centres with 100% qualified teachers as there were very unqualified adults and they were usually student teachers or relievers.) In case study centres with fewer qualified teachers, we found teacher mediation of

learning was facilitated mainly by qualified teachers. The only obvious variation was at meal times in those centres, when the unqualified educators mediated learning in two-thirds of the instances.

## Who initiated?

As for sustained sharing thinking, one line of inquiry in analysing our observational data concerned who was initiating conversations connected to teacher mediation of learning: a target child or an adult? The database containing the observations of target children and teaching staff allowed us to link observations of conversations with teacher mediation events.

TABLE 49: INITIATION OF CONVERSATIONS LINKED TO TEACHER MEDIATION BY LEVELS OF QUALIFICATIONS

Staff qualifications	100% qualified	50–79% qualified	
Numbers of conversations in child observations connected to teacher mediation			
	QT	QT	UQ
Teacher-initiated conversations	115 67%	69 62%	6 50%
Child-initiated conversations	58 33%	43 38%	6 50%
Totals	173 100%	112 100%	12 100%

Table 49 provides information about who initiated conversations which were linked to episodes of teacher mediation of concept learning. Qualified teachers were the most likely to initiate these conversations, doing so for around two-thirds of the occasions. Unqualified educators in centres with 50–79% qualified teachers visibly lacked the capability to initiate conversations which included them mediating concept development.

We looked at how many observations in an 8 minute round of observations involved conversations that included teacher mediation. In centres with 100% qualified teachers, the teachers often initiated these sorts of conversations across 6–8 minutes of an observation round, and target children did too. However, for unqualified educators, we found that these sorts of conversations occurred for only 2 minutes of the 8-minute round, regardless of whether the adult or the target child initiated them.

When age was considered, it was necessary to analyse the data for all centres, as the numbers of children aged 2 years and under in conversations connected to teacher mediation of concept learning episodes were too small.

TABLE 50: INITIATION OF CONVERSATIONS LINKED TO TEACHER MEDIATION BY ADULTS' QUALIFICATIONS

Staff	Qualified teachers	%	Unqualified educators	%
Numbers of conversations observed connected to teacher mediation of learning				
2 years and under				
Adult-initiated conversation	81		8	
Child-initiated conversation	40	42	4	43
	—		—	
	121		12	
4 years and over				
Adult-initiated conversation	103		6	
Child-initiated conversation	61	58	10	57
	—		—	
	164		16	
Totals	285	100	28	100

Table 50 looks at who initiated the conversations linked to adult mediation of children's learning for the two age groups. There was little difference between the pattern shown here, and the pattern of qualified teacher initiation seen in Table 50: qualified teachers initiate the large majority of conversations that include teacher mediation of learning for both age groups. However, 4-year-old target children initiated more of these sorts of conversations with unqualified educators than the educators did.

## Teacher mediation of concepts with infants and toddlers

Teachers are conscious that a sense of security is important for the well-being of children, particularly infants and toddlers. When settling children, they pay considerable attention to connections to family:

A new child watches a qualified teacher on the phone. The infant is unsettled. She gestures to the phone. The teacher interprets her gesture as a request to talk on the phone to her father. The teacher calls the father, and father and child 'talk'. [Target child] smiles and calms some more. She has been helped to understand the concept of being 'held in mind' even when that special person is not present. She demonstrated prior knowledge of phones. (Rata)

Episodes of teacher mediation of concepts with the younger target children (under 2s) occurred across a range of curriculum areas, including physical movement, such as use of the slide and throwing balls.

A qualified teacher framed the concepts of balance and height with a child who was constructing a tower of blocks, e.g., the teacher said when a block wobbled, 'It's going to fall off, it's not going to balance', and, 'Steady, steady, it will fall ... it is as tall as ...' (Piwakawaka)

A qualified teacher verbally framed the movements/steps a target child needed to take in order to climb backwards down a ladder. The intent was to teach the child how to climb down independently and safely. (Kauri)

A qualified teacher mediated in helping a target child to engage with another child. The teacher passed a ball back and forth between herself, the target child and another child, each having turns. The teacher then withdrew from the physical aspect of the interaction, but continued to verbally facilitate the target child and other child to pass the ball to each other using different mediums, rolling, bouncing and so on. (Kaka)

Later ...

A qualified teacher verbally frames instruction to a target child around directionality, e.g., throwing a ball to and rolling it back, repeating the emphasized words over and over. (Kaka)

A theme was the number of episodes of teacher mediation of concepts connected to the arts:

When a teacher noticed a toddler's interest as she set up art equipment, she invites the target child to the paints and prompts her to start by asking, 'Which colour paint do you want to start with?' When the toddler uses different colours of paint, the teacher names the colours being used, and comments, 'I like how you are trying all the colours', drawing attention to colour differences and names. (Piwakawaka)

A qualified teacher framed the use of the sponge — where it needed to be and how to stamp the shape; then stamp on the paper to make a print. The intent was to frame use of materials. (Kowhai)

Teaching staff also facilitated concept development during shared times involving water play, sand, puzzles, and play-dough; outdoors; and during reading stories.

On at least two occasions, a qualified teacher sits with the younger children, sorting and folding flannels and other washing. Her language is about inside and outside of the basket. As toddler shook each flannel, the teacher provided the word: 'shaking'. (Later, she said to the researcher that the shaking routine must have been learned at home, as teachers don't typically shake items as they fold the washing.) (Tui)

A qualified teacher noticed a target child in the garden area looking at the tomato plants. The teacher talked about vegetables as food, explaining about taste and flavour. She encouraged the child to try a tomato. The teacher also talked about when tomatoes are ripe explaining they need to be red. (Kakapo)

## Teacher mediation of concepts with 4-year-olds

With the older children, teacher mediation of concept development also happened during a variety of activities, for example, creative activities, in particular puppet making and pretend play. More explicit teacher mediation of learning in relation to literacy knowledge, such as reading, was recorded, including phonics, sequencing of letters when writing, letter identification and extension of language. Mathematical concepts were also integrated into conversations.

An unqualified educator encouraged a target child to write their name on their painting, naming the individual letters in the child's name and using questioning as a strategy to encourage the child to think about what letter would come next. (Kauri)

A qualified teacher talks with a 4-year-old child about the great grandmother getting her driver's licence at age 90. The teacher clarifies about relationships amongst relatives and that the word 'great' grandmother means someone who is very old. (Tui)

During social play, mediation of learning by the teaching staff was often related to concepts associated with positive guidance and models for conflict resolution:

A group of children was sitting in a circle. A child left and returned and was upset over losing their 'space'. The qualified teacher talked to the children about what might happen to your space when you leave a space or an activity to go and do something else. The intent was explained later and it was about helping the child to understand that spaces are shared rather than owned, and this concept needs to be considered when deciding to move on. (Kaka)

Two children, one a target child, were shouting at each other. A qualified teacher asked what was happening and one child said '[target child] is in my face'. The teacher asked one child to explain what this meant to the other child. The teacher then talked about being in someone's personal space and asked the child who had stood too close what this might feel like. (Kaka)

A target child becomes unhappy when another child fills his hole in the sandpit, and seems unable to sort it out himself. The qualified teacher provides conceptual guidance: to think about solutions and to negotiate it through with the other child. (Piwakawaka)

A qualified teacher organised the children into a queue, with each child sitting down so each could understand that their turn was after the person in front. The target child sat at the end. Whilst there were mathematical concepts in this activity, the teacher said later that her intent was to support turn-taking/fairness. (Kowhai)

Teacher mediation of concepts was also associated with or about bilingual development:

Children were counting jumps on the trampoline. Target child counts his jumps in English. A qualified teacher echoes his counting, but instead calls the numbers in te reo Māori. He moves to the drum and wants to count drum beats. Again, the teacher uses the reo,



illustrating that the words in the two languages mean the same thing — a concept that is fundamental for learning more than one language. (Rata)

A game of skittles was in progress with 4-year-olds. The unqualified educator talked about the concept of 'remaining' in relation to the skittles that had not fallen. They counted the remaining ones in English and in te reo Māori — developing an understanding that numbers could be called in two different languages. (Totara)

A qualified teacher saw an opportunity to support bilingual language development. A DVD, in Korean of a familiar story, 'Cinderella', was played. The teacher sat with the children, some of whom were Korean-speaking, answering questions and providing commentary around language. (Kakapo)

Older children are often expected to share in the care of the centre environment, and in setting out equipment, and teacher mediation of concepts is integrated into these shared activities:

A qualified teacher framed how a target child could sort objects when tidying up her 'work'. The teacher used open-ended questioning to support the child in coming up with her own solutions. The teacher also showed the child which containers would fit which objects (concepts of fit and volume). (Kaka)

Target child and another 4-year-old are at the washing sink scooping water and filling containers. A kaiako asks target child to wash out a paint container. He puts a hose into the paint pot, and she comments, 'The liquid is rising' (levels rise). She offers more pots to be cleaned and he wipes them out. The kaiako asks how the mix feels on his hands. He picks up a sponge and uses it to help get the pot clean. (He appears to be thinking about methods of effective cleaning.) (Kereru)

A group of children were helping a qualified teacher to sweep and gather up leaves and put them into a very large container. She said, 'Put the leaves in here. Once it is full you can jump on them. Fill it up to the top.' She clarified the meaning of the concept 'full' — it had to have leaves 'up to the top'. (Rata)

## Conclusions

Marilyn Fleer (2010) credits the EPPE team's research (Siraj-Blatchford, 2010) with ground-breaking theoretical understanding in early childhood education: sustained shared thinking connected with play as the means by which pedagogy builds children's understanding of conceptual and content knowledge. She uses the UK research, and her own research in Australia focused on conceptual learning, to propose the importance of teacher-child contextual 'intersubjectivity' and teacher-child conceptual 'intersubjectivity'.

In this chapter, we have described teachers' work in engaging with children in conceptual 'intersubjectivity' through sustained shared thinking and teacher mediation of concept learning, as observed in the 10 case study centres.

Sustained shared thinking was relatively rare, yet these events are very important for children's cognitive development, as is shown in their predictive value for children's later success (Siraj-Blatchford, 2010). In our New Zealand study, episodes of sustained shared thinking were much more likely to be facilitated by qualified teachers, and happened more often in centres with 100% qualified teachers. They occurred across the curriculum, that is, in routines as well as in 'free' play and group times for 4-year-olds, reflecting the broader definition of curriculum in *Te Whāriki*.



The examples in this chapter, drawn from across the case studies, reflect the philosophies and programme emphases of the individual case study centres; they also illustrate the variety of experiences, activities and events in which teaching staff were observed engaging in interactions focused on learning and teaching. Although a number of the examples of sustained shared thinking and teacher mediation of concepts focused on the acquisition of academic knowledge and skills, many were about relationships, children's identity, well-being and contribution to group learning outcomes, as brought to the fore in *Te Whāriki*. Very few, if any, were 'pedagogical events' introduced by teachers to frame play in order to assist children learning everyday concepts and scientific concepts.



## CHAPTER 11

# Collective case studies and conclusions

### Introduction

For a few years, New Zealand was in the unique situation internationally of having some education and care centres with 100% qualified teachers subsidised by government at a level that made this staffing profile financially feasible. NZCA thought it was important to study what these centres meant for teachers' work and for families who participated in them. When funding cuts were announced, there was a brief window of opportunity to find centres that met the criteria for 100% qualified teachers funding and to study them as soon as possible.

The methodology focused on two collective case studies: one case study with five centres with 100% qualified teachers, and the second with five centres with 50–79% qualified teachers. The centres were randomly selected in four urban areas. All the centres enrolled children from age 12 months to school age, and some also had younger children. Two centres are described as bicultural centres by themselves and by the Education Review Office.

In the first part of this chapter, the two collective case studies are summarised. Here, the case studies are framed by three constructs described by Tarr (2006): what the teaching staff do (practice and skills), what they know (knowledge), and what they show (attitudes). What adults 'show' includes their image of the child, and the way in which they view learning.

The patterns in these two summarised collective case studies serve to address the first three research questions:

1. What quality teaching practices feature (or are absent in) education and care centres with 100% qualified teachers and in centres with 50–79% qualified teachers?
2. What features in the two categories of centres promote or constrain some key aspects of children's learning and development?
3. What features of these two types of education and care centres have positive or negative effects on family participation?

In the second part of the chapter, the profiles, patterns and purposes of teachers' work in the two categories of centres are compared and contrasted (research question 4). Finally, some conclusions are drawn.

## Collective case study summary: centres with 100% qualified teachers

### Context

The five centres making up this collective case study were all in urban locations. By chance, two of them were close to tertiary education organisations, so more mothers had a degree and there were more bilingual homes. All centres in this collectivity are open for full days. Their licence size ranges from 24 to 100 children. All have separate staffing arrangements for the under 2s and over 2s, and the age groups are separated for much of the day. Three of the five centres have a primary caregiving system for the younger children and they minimise adult rosters in order to follow each baby's or toddler's needs or rhythms.

The management of these centres with 100% qualified teachers believe in the importance of qualified teachers, and had not lowered their high number of qualified teachers at the time the government reduced funding to this category of centres in February 2011.

### What teachers do in the case study centres

During interviews early in the fieldwork in the five 100% centres, it became obvious to the researchers that what these qualified teachers knew about theory relevant to early childhood education was strongly connected to what they do, that is, to their practice.

Our guiding theme ... is we have a Reggio Emilia [inspired] component. Our teachers are open minded in terms of what learning is about ... that you don't know the absolute. Our environment is special in that it offers many open-ended opportunities for children to engage with; the space itself is incredibly rich and ... we have a different way of looking at materials and how they could be used, explored by children. I think they're laid out really well in a way that is incredibly appealing and attractive to children. I think too we're very different from other centres in that we ... push the boundaries a lot in terms of trips that we do and how we do that. There is a lot of respect and trust that we place in our children.

Pikler: It is really important that they establish a relationship with a certain teacher that the child connects with. If you can strengthen that relationship, it will allow the child to feel safe enough to develop other relationships. From there, positive learning will occur.

These quotes from interviews indicate how teachers explain the special features of their practice drawing on theory, and discussing and using theory and research every day. What they do has a special term; Freire (1996) called it 'praxis'. The Pen Green Centre team say:

Praxis means reflective practice or, in the language of early years, 'learning by doing', then spending time thinking about what you have done and making links between theory and practice. (Whalley et al., 2001, p. 135)

Sarah Farquhar (2003), synthesising the evidence about effective early childhood education, found that qualified teachers are able to relate theory to practice. Our findings affirm that: these centres have a coherent philosophy informed by theory. Their practice includes regular self-reviews drawing on theory. In the individual centres in this collective, the theories talked about were diverse, ranging from attachment-based theories (such as Pikler), to Malaguzzi/Reggio Emilia theories about teachers engaging with the '100 languages of children' (Edwards, Gandini, Forman, 1998). What these teachers do for children's learning is now summarised. What they could do better is also summarised.

On NZCER's ECE Quality Rating Scale, all or the majority of the five centres with 100% qualified teachers attained above-midpoint ratings in what teachers do for children's learning for more than half (56%) of the items. The ratings were assisted by a better-than-average level of physical resources across the five centres, lifting their above-midpoint ratings to 68% of the variables. A 'very frequent' rating on any item is hard to attain, yet three of these centres were very frequently providing high quality care and education for infants and toddlers.

Teachers' practice in the 100% centres did not rate so well in relation to one-quarter of the variables. The items where the majority of these centres were rated below the midpoint were:

- Fostering children's leadership skills
- Facilitating te reo Māori me ona tikanga Māori
- Accepting and representing other cultures
- Providing opportunities to explore mathematics.

What early childhood practitioners do encompasses work with children as a team, and communications with parents and whānau: this is direct relationship-based work. Team work is also necessary to plan the curriculum and evaluate its implementation, and assess and document children's learning. Four of the five centres with 100% qualified teachers were rated well above the mid-point on team work, lifting overall ratings even higher.

In interviews in case study centres with 100% qualified teachers, all staff described their planning system in detail. The headline features of these teachers' planning and evaluation and assessment practices, and communicating them to parents, are:

- curriculum plans are put up on a wall or notice board for parents to read;
- some children contribute to planning by commenting on what they have 'read';
- some centres analyse what was happening for learning outcomes in order to plan;
- all centres provide each child with a portfolio/profile book showing their learning;
- most provide daily notes about the under 2s' sleeping, eating and nappy changes;
- all centres send programme news of the day or week to parents by email or blog;
- parents respond frequently to programme news and photos by email;
- less than half of the target parents had added anything to their child's portfolio; and
- the bicultural centre has explicit planning for te reo me ona tikanga Māori;

Few parents recalled being asked about their aspirations for their child or to contribute to programme planning. They felt they did little apart from bringing in insects, pets and resources, or dressing up their child for special events. Some join excursions. Teachers saw it differently and thought there were many contributions, mostly via informal face-to-face conversations and email exchanges, which are frequent and valued.

Teachers' interactions with children are very significant for fostering learning. The researchers collected a large corpus of data about adult-child interactions. Centres with 100% qualified staff were doing more than centres with fewer qualified teachers in relation to interactions that strengthen children's cognitive development: there were more conversations, more episodes of sustained shared thinking, and more episodes of teacher mediation of children learning concepts. We also found that children in the 100% centres spent more time in complex play, play that is more cognitively complex. In sum, in the 100% centres teachers are thinking a lot about what they do as they interact with children.

It was the teachers themselves who assessed the children for the project. In the 100% centres, the children had a better average score for independence and concentration, which is associated with self-control. They had lower average scores for cooperation and peer sociability, compared with those in the other centres. They were no different in their participation with symbol systems. Teachers in these centres seemed uncertain about the concepts used to describe children's participation in a bicultural world. What was clear was the reo being used by the children was mostly in group events, such as singing waiata.

In relation to short interactions, qualified teachers in the 100% centres had high rates of these interactions with target children. They were twice as likely as the younger children were to initiate interactions, and 50% more likely than the 4-year-olds were to initiate interactions with these older children. These qualified teachers interacted with a child most often during unstructured time and whilst children were engaged in the creative arts. The teachers in these centres were more likely to engage in conversations connected to episodes of sustained shared thinking, or teacher mediation of concept development, than staff in the centres with fewer qualified teachers.

### What teachers know

The data indicated that teachers in the 100% centres know the research on good quality early education. Through praxis, most of the teams and/or teachers in the centres with 100% qualified teachers demonstrated that they know relevant theory and early childhood education research, and use it in their planning, teaching, assessment and self-reviews. They attend courses and conferences and mix with academics. They are knowledgeable about ICT and are early adopters in using it to communicate programme news frequently to parents and whānau. They received frequent email replies from parents as a result. However, the centres were weak in their knowledge of te reo me ona tikanga Māori.

### What teachers show

Three centres' interviewees were explicit about aiming for high quality practice; all centres viewed the child as an active learner. The collective results showed teachers' professionalism in their overall pedagogical capability, their commitment to their own learning as well as to children's learning, and their adoption of practices that drew parents closer to their children's learning in the centres (planning wall displays and email communication). The details in the earlier chapters show that one centre in this collectivity was less capable in what they do, know or show. The main reason seemed to be that the centre was finding it hard in Term 1 to maintain 100% qualified teachers each week, and it was less like a community of learners than the other four.

## Collective case study summary: centres with 50–79% qualified teachers

### Context

Four centres in this collective case study were located in urban areas, and one was in a provincial town. Two were owner-operated and three were under diverse umbrella organisations. One was close to a tertiary education organisation. Most had been established 10 to 20 years ago in converted residential houses; although one was purpose-built only three years ago. The licences are all-day, and range in size from 25 to 50 children, with part-time attendance an affordable

option. Three centres have sizeable proportions of Māori and/or Pasifika families enrolled. Three operate as mixed aged groupings. Rosters are common and have a marked impact on teachers' work in this case. Their rosters factor in placing a qualified teacher alongside someone who is unqualified. Two reasons were given for this pairing: so that children in each area have the opportunity to interact with qualified teachers, and so that unqualified staff can be given support and mentoring by qualified teachers.

## What practitioners do in the case study centres

Teaching staff in the five centres with 50–79% qualified teachers are strongly relational. None of the interviewees explained their centre's philosophy of practice by drawing on theorists, although two mentioned a theorist (Bronfenbrenner and Pikler) when probed. Several of these centres work hard to draw in families who have not participated in early education in the past and make them feel welcome. Play and confidence are emphasised. One interviewee said a culture of play is something they need to build up with new children.

The ratings of these centres, based on NZCER's rating tool, contrast markedly with those for the collective case study of the 100% centres. On all items to do with children's learning, the majority of the 50–79% centres scored on the mid-point ('sometimes happened') or below it. Average or inadequate physical resources were part of the explanation. The means for all clusters of variables were lower than those across 100% centres.

On a more positive note, the team work and relationships with adults in several centres were rated higher than the mid-point. Two centres were rated higher than the 100% centres on tikanga Māori and use of te reo. As well, the centre that aspired to all staff being qualified stood out as an outlier, because it was rated above the midpoint for several variables, such as child engagement in learning. It was slightly higher than the mid-point on the variables for the under 2s.

Two or three of these centres, however, were rated as 'very little like/hardly ever' on each of the quality variables for the youngest children. This is of considerable concern, given the recommendations from recent inquiries (see, for example, Carroll-Lind & Angus, 2011).

The teaching staff in the five centres with 50–79% qualified teachers mostly talked with parents informally mornings and/or evenings, including about their aspirations for their child. These exchanges allowed staff to identify interests at home that could be woven into the programme at the centre. Practitioners in these centres do not engage with parents via email.

Planning seemed to be less systematic and analytical, compared with the 100% centres: indeed, planning and writing learning stories often seemed to be compromised by having too few qualified teachers and a churn of unqualified staff.

Oh we discuss it. Oh, for me and [name] we're always discussing things. And it's done in the staff meeting. And if there's something, like everyone's interested, like bugs, there'll probably be something bigger planned for that — where we're going to from here with [it]. Well, we got really good at it, we had it every week and every week they got ... But since the numbers have gone up and we lost [staff name] ... [Long pause].

However, the 'outlier' centre in this collective case did do more detailed planning, made some planning documentation visible via wall displays, and asked parents annually what they would like teaching staff to include in the programme in the forthcoming year. The centre's positive ratings data showed that the staff focus on programme planning and assessment paid off.

In the interviews in the five centres with 50–79% qualified teachers, we asked whether unqualified staff contributed to children's narrative assessments. There was a range of responses. Some unqualified staff do documentation, with or without qualified teachers mentoring them, while

in other centres unqualified staff play a more minor role in documentation (and planning), and consequently have less 'non-contact' time, or do more tidying. Thus, pedagogical responsibilities are undertaken by fewer staff, i.e., by the qualified teachers. Looking at the portfolios/profile books of target children, there were sparse entries in two of the centres' books. But the 'outlier' centre not only made a portfolio for each child, but also displayed some learning stories on walls. Motivating parents to contribute involves professional expertise, and in three centres there were minimal contributions from parents. When portfolios are done, parents said they like to see what their child does at the centre.

In this collective case study of centres with fewer qualified teachers, the adult-child interaction data showed fewer conversations with target children, and fewer episodes of sustained shared thinking, and teacher mediation of children learning concepts, than occurred in 100% centres. In addition, children spent less time in complex play than their peers in the other centres. In the short interactions between teaching staff and target children, there were lower average rates of interactions, partly because there was little difference between how qualified teachers and unqualified staff interacted with children. Very few unqualified staff initiated conversations with children linked to sustained shared thinking or children developing concepts. If they did, these conversations were shorter than those observed in 100% centres.

Teacher assessments of children's social behaviour, their knowledge and use of symbol systems, and their bicultural knowledge and participation revealed little difference between the two categories of centres. The centres with 50–79% qualified teachers had a slight edge on the social scales to do with peer sociability and cooperation. Parents and practitioners in centres with more unqualified staff emphasised child socialisation during interviews; their aims were being fulfilled. However, the centres did slightly less well in helping children develop independence and concentration. Independence and concentration map onto self-control, a key predictor of later success in life (Moffitt et al., 2011). There was no real difference in the scores for children participating in symbol systems for the two categories of centres.

The majority of the head teachers were Māori. Many of the staff members in these centres were using more te reo Māori, actively incorporating tikanga into their practice, and including knowledge of te ao Māori in planning their curriculum. They were more conservative than the 100% centres in their assessment of children's use of te reo, probably because they aspired to children using it for conversational purposes, not simply joining in group use. They emphasised shared learning, as well as individual learning.

## What the practitioners know

The staff members in centres in this collective case were visibly knowledgeable about the value of early education for strengthening family and community in places where participation has been lower than the national average. But they seemed less knowledgeable about the fact that child benefits accrue when early education is high quality.

The practitioners knew the families and children very well. They knew how to help children make friends and to enjoy childhood. The majority demonstrated Māori values in action, such as whanaungatanga and manaakitanga, and related Pasifika values, which built trust between families and their centre. They knew te ao Māori.

However, these teaching teams either did not know how to use email to send out learning stories and weekly news, or they decided not send out emails because many families in their communities do not have access to the technology. These centres, and the parents, are therefore missing out



on a communication medium that is transforming the participation (Rogoff, 1998, 2003) of parents in their children's learning in the 100% centres' case study.

Most of these centres were unable to provide high quality early education, as was shown in their ratings when the NZCER ECE Quality Rating Scale was applied. One centre did rate relatively well, through implementation of good systems, systematic assessment and planning, and responsive teaching. Leadership counted.

As a collective case, these centres engaged less in praxis; that is, they displayed less 'know-how' and 'know-why'. This was particularly evident for the under 2s in most of these centres. The rhetoric in many of the interviews was about teams of equals; however, the data suggests that 'equal' is at the level of the 'lowest common denominator', especially vis-à-vis pedagogy that is most effective in positively influencing children's futures. One manager despaired about the level sinking each time a new unqualified person joined her teaching staff. The centres with 50–79% qualified teachers did less well on practices important for identity development via learning stories (Carr & Lee, 2012), and less well on improving children's concentration and stretching children's thinking.

### What the practitioners show

The managers and practitioners showed that they were adaptable; they listened to Māori and Pasifika families and families on low incomes, and made adjustments to suit the communities they served. They reached out and included whānau in journeys of learning about their community, and about their whakapapa at times (for example, the Hatupatu stories and the invitation, 'Would you like come with us on a visit to the local marae?') They showed respect for the mana of their peers who were unqualified. However, the patterns of teachers' work in centres with more unqualified staff (including qualified teachers expending considerable effort on guiding their unqualified peers) resulted in fewer experiences for children that have long-term positive effects on their learning.

Managers show in the way they devise rosters (where they pair an unqualified adult with a qualified teacher) that they know the value of children interacting with qualified teachers, and need to manage the deployment of staff with different levels of professional knowledge for the children's benefit.

Generally, these centres attended mostly to what was happening for children in the present, and showed less commitment to children's cognitive development and to educational practices that would strengthen outcomes for children in the future. The teaching staff seldom participated in conversations with children, or in sustained shared thinking or teacher mediation of concept learning. Consequently, the children reflected the effects of this staff profile and patterns in interactions by engaging less in complex play.

### Discussion

The profile of qualifications amongst teaching staff in the case study centres affected not only the teaching and learning of the children, but also the staff's capacity to engage with parents. The role of management of the centres was affected too.

There were patterns in the differences. At the most general level, centres with 100% qualified teachers had far more positive scores on the majority of the research measures than centres with 50–79% qualified teachers. The most obvious differences were in the ratings of quality using the NZCER ECE Quality Rating tool, where most centres with 100% qualified teachers were rated above the mid-point on the large majority of variables, whereas the majority of centres with

fewer qualified staff were rated as on the mid-point or below for most variables. The adult–child interaction ratings were corroborated when triangulated with adult–child observational data.

Analysis of observational data displayed the other most obvious set of differences between the two categories of centres: differences to do with adult–child conversations, sustained shared thinking between qualified teachers and children, and teaching staff mediating children's conceptual development. Both of the latter strategies increase children's consciousness and understanding of their material and social worlds.

As well as the patterns in quantitative data about the differing quality of early education, a different sort of pattern was detected. There was a thread through the findings that was uncovered by attending to pedagogy associated with children's thinking, that is, a cognitive development thread. Data about practices that affect children's cognitive development (sustained shared thinking and teacher mediation of concept learning) demonstrated that not only were qualified teachers more capable in fostering these experiences, but the teaching profile in the workplace affected qualified teachers' capacity to engage in these intellectually-engaging conversations with children. Where there were fewer qualified teachers, there were fewer such conversations. Institutional conditions can support (or detract from) this capacity.

The researchers spent time looking for any pattern in other practices that might strengthen the cognitive thread. We noted in the child assessment data that the 100% centres had the edge with regard to children's concentration and independence, whereas children in centres with fewer qualified teachers did comparatively better on cooperation and peer sociability. Qualified teachers had more interactions with target children and were more likely to initiate conversations with them. Links between conversations and sustained shared thinking, and between conversations and teacher mediation of concept learning, were more common in centres with 100% qualified teachers, and for a considerably higher proportion of the time slots. The 100% centres provided increased opportunities for memory recall, imitation and literacy learning for families by providing rich portfolios and immediate and frequent email communication about children's learning. The resources were also better in the 100% centres.

Many of these patterns in what teaching staff do can be explained by what staff know in the 100% centres. The individual teachers have completed at least three years of teacher education, specialising in child development and early childhood education studies. These centres' advantage also seems to be about having a critical mass of knowledgeable teachers whose teacher education has given them 'know-why' as well as 'know-how', and motivated them to be reflective to continually improve their pedagogy. Clearly, government policies matter.

Institutional vision and policies matter too. The patterns can also be explained by the purposes espoused in interviews and statements of philosophy. Interviewees in 100% centres were explicit about providing high quality early education, for infants and toddlers as well young children. They showed that they knew the complexity of accomplishing that goal and were motivated by the challenge. Interviewees in many of the centres with fewer qualified staff were focused more on supporting families from populations who do not participate so much in early childhood education, and building parents' and children's confidence. The kaupapa of interviewees in the bicultural centres was strongly oriented to *te reo me ona tikanga Māori*.

Government policy and institutional profile also influence what management do. There were contrasting patterns in the issues that were occupying managers, apart from finance. For the centres with 100% qualified teachers, management of change was occupying them — figuring out how to operate on a reduced income. Some had not replaced a staff member who had left. As a consequence, one head teacher was working with the children more, but the administrative work was taken home to complete. Less dramatic changes, such as financial constraints on

professional development and purchase of resources, were more widespread and were affecting staff morale and the relationship between management and staff.

For centres with 50–79% qualified teachers, a major issue for managers was how best to deploy the qualified teachers they had, so they could support and guide unqualified staff, interact with children and parents to optimise their experiences in the centre, and take a mentoring role in planning for and documenting children's learning.

## Conclusions

This Teachers' Work research project has identified a number of important effects of having 100% qualified teachers in a centre, particularly in relation to children's cognitive development. The babies and toddlers in these centres benefit from more consistent, high quality care and education. All children in these centres benefit from more teachers asking more open-ended questions and creating environments that foster complex play, compared with children in centres with 50–79% qualified teachers. Children in centres with the most qualified teachers have more interactions with qualified teachers, more conversations with these teachers, and more episodes of sustained shared thinking and teacher mediation to assist their concept development. The children in these centres have slightly higher scores on indicators to do with independence and concentration (which maps on to self-control, a strong predictor of later success in life). This is the summary of the effects of 100% qualified teachers in centres: conditions are more positive for fostering children's cognitive development. The research literature tells us that these are significant effects; for example, sustained shared thinking is predictive for children's later academic achievement (Siraj-Blatchford, 2010).

Marilyn Fleer (2010) proposes taking these strategies further and outlines her model of conceptual play. On occasion, practitioners would plan pedagogical events where they conceptually frame some play for the deliberate purpose of strengthening children's understanding of a concept. She argues that this would transform everyday practice. Here, the case study centre inspired by Reggio Emilia had some intentional teaching close to this model.

Many of the positive effects that we found arose from greater pedagogical expertise in the 100% teams: in linking theory to practice in planning, teaching, assessment and evaluation/self-review, and in communicating with parents and whānau. But logistics are also part of the explanation: the numbers and ratios of qualified teachers to unqualified staff. In addition, the everyday deployment of qualified teachers, including the head teacher, to guiding unqualified team members has consequences for children. It was also the qualified teachers who took on associate teacher responsibilities for any student teachers doing their practicum. More time giving on-job professional education to unqualified adults means the smaller number of qualified teachers in the centres with more unqualified staff spend less time with children.

The case studies in this project have illuminated the effects of an internationally-innovative policy to incentivise 100% of required (regulated) staff holding a teaching qualification in education and care centres. They have enhanced understanding of the complex social and professional situations of teachers who team teach in early childhood settings. And they confirm the necessity for regulating at least 80% qualified teachers in all education and care centres, particularly for infants and toddlers.

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This publication reports NZCA's second Flagship research project, *Early childhood teachers' work in education and care centres: Profiles, patterns and purposes*. It explores the work of teachers in different contexts and asks whether teachers' qualifications make a difference to children's experiences.

This study tells us what we already suspected — that qualified teachers matter. Qualified teachers draw on their pedagogical knowledge to interact in meaningful ways which bring about positive gains for children. This study identified different patterns of teaching and learning in '100% qualified' services and was able to link these patterns to children's cognitive development.

I invite you to read the findings of this study and to consider their implications for raising the quality of early childhood education in Aotearoa New Zealand.

Judy Kaa  
National President  
Te Tari Puna Ora o Aotearoa/NZ Childcare Association

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