Quality Teaching Early Foundations:
Best Evidence Synthesis

June 2003

This report is one of a series of best evidence syntheses commissioned by the Ministry of Education. It is part of a commitment to strengthen the evidence base that informs education policy and practice in New Zealand. It aims to contribute to an ongoing evidence-based discourse amongst policy makers, educators and researchers.

The best evidence synthesis approach is being developed in collaboration with researchers. It draws together in a systematic way the available evidence about what works to improve education outcomes, and what can make a bigger difference for the education of all our children and young people.
Quality Teaching
Early Foundations

Best Evidence Synthesis
Acknowledgements

I wish to acknowledge the important work of all teachers of young children – professional teachers, parents, and others who share responsibility for children’s learning. It would not have been possible to produce a synthesis of best evidence if it were not for teachers allowing researchers to examine what they do, how they do it, and what seems to work best for improving outcomes for children. Special acknowledgement is also due to the researchers whose work has helped to inform this synthesis, and to the many researchers who responded to requests for further information on their studies.

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This synthesis report is dedicated to babies Sally MacCormick (born 2/1/03) and Elise Farquhar Alexander (born 14/1/03) and all the other children of this generation who stand to benefit from teaching and educational policy that is informed by the best evidence.
Executive Summary

This synthesis addresses the question of:

“What works in early childhood teaching for maximising children’s learning outcomes and reducing disparities amongst diverse children?”

In New Zealand, early childhood is defined as the period of education from birth to approximately five or six years of age. Research evidence on children’s learning points to early childhood as the foundation years for later learning and development. The evidence indicates that children’s experiences during early childhood are critical. Quality teaching is identified as the key lever for improving outcomes for diverse children. This synthesis outlines what teachers can do, based on the combined best research evidence, to provide diverse children with a strong foundation for future learning.

This is the first iteration of the “Quality Teaching: Early Foundations” synthesis. A best evidence approach is new in early childhood education in New Zealand. The synthesis is intended to encourage dialogue amongst and between teachers, policy-makers and researchers to assist in developing policy, promoting best practices, and identifying research needs. Critical feedback on both the contents and the usefulness of this first iteration will help to inform subsequent iterations.

A wide review of the research on teaching and learning linked to child outcomes has produced seven characteristics of quality early foundations teaching. Certain research-based features were found to underpin the characteristics of quality teaching. These features are outlined and supported by examples and illustrations from research, and by theory also where relevant. The characteristics of quality teaching linked to child outcomes and the research-based features of these characteristics are:

1. Effective Pedagogy Involves Working With Children as Emergent Learners

<table>
<thead>
<tr>
<th>Research-based Features</th>
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<tbody>
<tr>
<td>Teaching is focused on children's learning.</td>
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<tr>
<td>Quality teaching facilitates children's dialogue, cooperative and independent work, motivation and dispositions characteristic of emergent learners. It also provides conditions that support learning, e.g. opportunities to participate in interactive situations and a wide range of cognitively-oriented activities.</td>
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<tr>
<td>Quality teaching approaches cognitive and social-emotional development as complementary to achieve better outcomes in children's learning.</td>
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1 The current structure of New Zealand’s education system means that early childhood education occurs between birth and 5 or 6 years of age, after which children commence their primary education. There is good argument based on research and theory for “early childhood” education to be extended to eight years. See the arguments presented in Cullen, J. (2000). The early years: Conceptual issues and future challenges. New Zealand Research in Early Childhood Education, 3, 3-12


• Learning goals focused on knowledge, skills, dispositions, and feelings can best serve children's development in the long term.

2. Pedagogy is Informed by Contextual Knowledge of Children's Learning

Research-based Features

• Pedagogic practice includes systematic observation of children and feedback to children that matches their level of understanding.

• Children's learning in other social/cultural contexts (especially the home) is recognised and built upon in early education services.

• Quality teaching builds partnerships with children's family and whanau.

3. Effective Teachers Use Content Knowledge Confidently to Support and Extend Children’s Learning in Interactive and Play-based Situations

Research-based Features

• Teachers draw on content knowledge to extend children's thinking and inquiry, and support their cultural identity and sense of contribution and belonging.

• Teachers have confidence in their ability to communicate and demonstrate content knowledge.

• When teachers do not have the necessary content knowledge to support children's questions and needs they access information with children (e.g. through books, the Internet, by asking community specialists and family elders).

• When teachers are unsure of the accuracy of their content knowledge on a particular topic they check their understanding and research further into it.

4. Pedagogy Scaffolds, Co-Constructs, Promotes Metacognitive Strategies and also Facilitates Children’s Learning in the Context of Adult/Older Child Activities

Research-based Features

• Teachers are actively involved in planning, structuring and informing children's activities and learning experiences.

• Teachers scaffold children's learning during play and in the context of planned and initiated focused group work.
• Pedagogy supports children to draw on their varied experiences and activities to strengthen learning in particular areas.

• Pedagogy promotes a co-construction model of learning.

• Pedagogy promotes children’s metacognitive development and strategy use.

• Pedagogy provides opportunities for children to observe and participate in everyday adult/older child tasks and activities.

• Effective teachers teach metacognitively, reflecting on their own thinking and children’s thinking as learners. They engage in reflection and planning with colleagues and use a range of methods to help to identify how pedagogical practices can be improved to benefit children and further increase their effectiveness.

5. The Social Setting is Organised in Ways that Support Learning and Maximises Outcomes

Research-based Features

• Teachers foster a ‘community of learning’ approach where there are many varied opportunities for collaboration and social learning e.g. strategies to resolve conflicts with peers.

• Teachers take account of their role as models for children’s learning.

• Children are supported to change roles between teacher and learner as their learning is scaffolded and as they scaffold the learning of others.

• Interactions with diverse peers facilitate children’s cognitive and social outcomes.

6. The Physical Setting is Organised in Ways that Support Learning and Maximises Outcomes

Research-based Features

• Pedagogy is concerned with ensuring that the organisation of space, activities, and density is optimal for children.

• The organisation and co-location of play activity areas provides potential for shaping and enhancing children’s thinking and learning.

• Teachers recognise opportunities for scaffolding children’s learning and promoting thinking in the playground and when children are using physical play equipment.

• Children’s access to some materials is regulated by the teacher to facilitate children’s use of language to request what they require.
7. Teaching is Responsive to Children’s Physical and Emotional Well-being

**Research-based Features**

- Being responsive to children’s needs for good health includes prevention of the spread of communicable diseases, and wide ranging health promotion strategies that involve families.

- Effective teachers recognise and attempt to reduce through planning and intervention, distracting and potentially harmful noise, deficiencies in children’s nutritional intake, and the likelihood of children having physical accidents.

- Effective teachers create an emotionally positive climate, characterized by warm and reciprocal relationships with children and parents and families. They recognise the significance of children’s relationships with their parents for adjustment to the centre, and support parents in helping their child to make this adjustment.
1. Introduction

1.1. Purpose

The purpose of this synthesis is to bring together the best evidence on quality teaching for reducing disparities and maximising learning opportunities and outcomes for all young children. Quality teaching is defined as: pedagogical practices that facilitate for diverse children their access to knowledge, activities, and opportunities to advance their skills in ways that build on previous learning, assist in learning how to learn, and provide a strong foundation for further learning in relation to the goals of the early childhood curriculum *Te Whaariki* and cultural, community, and family values. More specifically, pedagogy refers to “the teaching techniques and strategies which enable children’s learning to take place. It includes interactions between teachers and learners, and the physical and social learning environment”.

The synthesis has been prepared for three very different audiences: policy makers, early childhood educators, and academics/researchers. Early childhood educators are defined here as including teachers working in early childhood services, and parents and other family and whanau members. This is the first iteration of the synthesis “Quality Teaching: Early Foundations”. An evidence based approach is new for the early childhood field. It is intended that the synthesis will generate discussion, leading to critical feedback on both its content and its usefulness for policy, practice, and research to help to inform subsequent iterations.

1.2. Quality Teaching: Building a Strong Early Foundation for Children’s Learning

In New Zealand early childhood education covers the period from birth to approximately five or six years of age. The expansion and improvement of early childhood education services is often argued on the basis of early childhood being the most “critical” period for child development. Psychologists have long claimed that early childhood is the most critical period in human development. In the mid 1990s, “new” brain research and its interpreters argued that the first three years of early childhood were the critical years for brain development. Proof of the critical period hypothesis, whether it be the first three or the first six years, however remains elusive.

The evidence for continuing learning points to the early childhood years being the foundation for later learning and development. Research indicates that children’s...
experiences during the early childhood years are critical\textsuperscript{12}. The quality of teaching is identified as a key lever in making a difference for children’s outcomes and reducing disparities for heterogeneous groups of children\textsuperscript{13} \textsuperscript{14}. This synthesis represents a first attempt to highlight what teachers can do, based on the combined best research evidence, to provide children with a strong foundation for future learning whatever the socio-economic status of children’s primary caregivers, or children’s ethnicity, language background, gender, age or developmental capabilities.

The synthesis on quality teaching in the compulsory school sector\textsuperscript{15} sits alongside and should be read in conjunction with this synthesis on early childhood. Although much of the research cited in the schooling synthesis focuses on older children, the possible relevance and application of this best evidence should also be carefully considered by policy makers, educators and researchers for helping to inform best practice and for adding-value to children’s learning in the early childhood years. For example, the evidence on “wait-time” for allowing children to respond to a teacher’s question is potentially just as useful for early childhood as for school teachers to be aware of. This synthesis on early childhood education has not attempted to duplicate the evidence presented in the schooling synthesis. It focuses on what the evidence suggests to be especially relevant in the early childhood years, although overlap in some best evidence was necessary.

A wide review of the research findings on early childhood education with an emphasis on evidence linked to children’s outcomes was conducted. Seven characteristics of quality teaching were derived from an analysis of the best evidence found through national and international literature searches within the time frame of this project. The findings of a major New Zealand longitudinal study, the Competent Children Project\textsuperscript{16}, were noted to be consistent with the results of international studies, and are reflected within the characteristics of quality teaching identified by this synthesis. For children at age 10 the Competent Children Project findings showed that the pedagogical variables of significance from children’s final early childhood education centre were:

- Teachers who were responsive to individual children.
- Teachers who asked open-ended questions of children.
- Teachers who joined children’s play.
- Teachers who allowed children time to complete activities.
- Teachers who guided children in the centre activities.
- A variety of activities in different learning areas which children could choose from.
- Experiences of cooperative and supportive work with other children.
- Lots of printed material evident and used\textsuperscript{17}.

### 1.3. Outline of the Synthesis Report

Following this first section, Section 2 of the synthesis looks briefly at the relationship between teaching and learning, including cultural considerations, learner age, and the importance of teachers thinking critically about their teaching. Section 3 highlights the heterogeneity of children in New Zealand and the need for quality teaching (especially when the teacher is not personally related to the child) to be responsive to diverse children. Section 4 outlines the kinds of outcomes considered in this synthesis and backgrounds the importance of focusing on outcomes. Section 5 outlines the conceptual and practical challenges encountered in developing this first iteration, the

\textsuperscript{12} Bailey, D. B. (2002). Ibid.
\textsuperscript{14} Bowman, B., Donovan, M.S., & Burns, M.S. (2001). (Eds.). Ibid.
\textsuperscript{16} Note that the Competent Children study did not include Kohanga Reo in the early childhood centre sample. The very low number of Pasifika centres involved means that caution is needed when interpreting the Pasifika findings.
\textsuperscript{17} Wylie, C. (2001). Ten years old and competent – The fourth stage of the competent children project: A summary of the main findings. Wellington: NZCER.
methodology, the various steps taken in preparing the synthesis, and the scope and limitations of the synthesis. Section 6 presents the review question which guided the literature searches and evidence selection, and led to the generation of the characteristics of quality teaching as outlined in Section 7.

Section 7 constitutes the main body of the synthesis. It draws on examples of New Zealand research linked to outcomes as much as possible, and overseas research where helpful and applicable. The examples of research are presented to illustrate and explain the "research-based features" of the seven characteristics of quality teaching derived from the best evidence. Section 8 summarises the evidence and emphasises the status of this best evidence synthesis as a first iteration, and as part of an iterative process promoted by the Ministry of Education to improve the evidence base for policy, practice, and research.

2. Interrelationship of Teaching and Learning

2.1. Views on Learning

In Maori “ako” means both to “teach” and to “learn” (Metge, 1984). The learner and the teacher cooperate as one towards a shared goal. Talented novices are seen to challenge teachers. There is at the same time both a strong sense of cultural challenging and of personal construction and experimentation (McNaughton, 1995). Recent research on how children learn and the teaching strategies that best facilitate their learning and improve outcomes for all groups of children supports the notion that learning and teaching are inseparable. Even very young children can be supported to think metacognitively and be experts in their own learning. Children are competent and powerful learners.

In mainstream New Zealand early childhood education teaching practice the concept of ako is generally not acknowledged. The theoretical view of Piaget underscores the concern for teaching to be developmentally appropriate according to children’s age-related stage of development, and it also underscores the free-play free-choice programme approach common within many early childhood services. Other theories, notably Vygotsky’s sociocultural theory, point to the limitations of the developmental approach. In contrast to the individualistic view of children as independent learners, sociocultural theory emphasises the importance of adult-child and child-child discourse in cognitive development. Instead of waiting until children are developmentally “ready” to learn something new or to be introduced to particular experiences sociocultural theory proposes that social experience can lead to higher cognitive functioning for children. It affirms that teachers and education have a direct (rather than an indirect) role to play in supporting children’s learning. Meade (1997) introduces the idea of teachers as “warm demanders” who respond to children’s interests and engage with their minds, thereby maximising learning and utilising naturally occurring opportunities for teaching in their play and discovery. The developmental approach has been challenged at the policy level in recent years. For example the 1993 draft of the Te Whaariki curriculum document contained language indicating a developmental

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philosophy, whereas the final version in 1996 reflected a considerable shift to sociocultural theory.

Major insight into how teachers can improve learning outcomes for children was provided almost twenty years ago in a landmark study by British researchers Tizard and Hughes (1984)\textsuperscript{23} of 4-year-olds language and learning at home and at nursery school (early childhood centre). The researchers reported that the home tended to be a much richer context for learning than the nursery school because children had more shared experiences that they could talk about, they were provided with a broader range of play experiences through participation in real-life activities, and they talked about a greater range of things with their parents than they did with their nursery school teachers. This held true whether or not children’s families were working or middle-class.

Tizard and Hughes’ (1984) early observations of the importance of social context, intersubjectivity – shared experience and meaning, and learner-teacher partnership has support in current perspectives on learning and teaching\textsuperscript{24 25 26}. Support can also be found in New Zealand research. For example, Goodridge (1995)\textsuperscript{27} reports that a feature of writing activities in the homes of 18 Auckland Maori, Pakeha, and Samoan families was that families were able to make effective connections as they guided their pre-school children in everyday family activities through sociocultural processes to solve tasks and produce texts at higher cognitive levels than was observed when children started school. At school, most teachers taught children to develop a narrower range of expertise.

A partnership/relationship model of learning built on shared meaning, shared experiences, and intimacy underpins much of the current research on learning and teaching. This model supports recognition of effective links between the home, early childhood centre, and school settings. It also supports recognition of children’s voice – as Jordan (1999b, p. 58)\textsuperscript{28} states “in order to engage with children’s thinking, teachers need to attend to what the children are saying”. The concept of “communities of learning” further extends the relationship model by positioning learners and teachers as group members who influence and are in turn influenced by each other\textsuperscript{29}.

New Zealand researchers Joy Cullen and Stuart McNaughton have made additional contributions to our understandings of what is important to maximise children’s learning and the teacher’s role. Through a case study of his own child’s emergent literacy McNaughton (1995)\textsuperscript{30} demonstrated the value of a co-constructivist approach\textsuperscript{31} to early education, where the learner co-constructs his or her own expertise. The co-constructivist view is more in keeping with Maori views of teaching and learning as being parts of a whole. It also recognises that children’s learning is embedded in social and cultural contexts. In his new book, “Meeting of the Minds”,

\textsuperscript{26} McNaughton, S. (1995). Ibid.
\textsuperscript{29} Rogoff, B. (1994). Developing understanding of the idea of community of learner. Mind, Culture and Activity, 1, 209-29.
McNaughton (2002)\textsuperscript{32} brings together research, theory and experience to explore and explain effective teaching approaches for culturally and linguistically diverse children.

Cullen (1998a)\textsuperscript{33} has put forward a strong case for a greater awareness of young children’s metacognitive development. She has drawn on her own and others research to suggest that early childhood teachers can promote children’s metacognitive awareness (knowledge) and control (of thinking and learning processes) by providing opportunities for children to participate in a range of socially interactive contexts\textsuperscript{34} –\textsuperscript{35}. As the families did in the studies of Tizard and Hughes (1984) and Goodridge (1995), Cullen’s argument is that early childhood teachers can also similarly extend children’s thinking and awareness of self-as-learner through reflective dialogue and shared experiences.

\subsection*{2.2. Learner Age}

Children present themselves to preschool teachers or caregivers with many differences in their cognitive, social, physical, and motor skills. These differences are associated with both “functional” characteristics – such as temperament …\textsuperscript{36} and “status” characteristics – including gender, race, ethnicity, and social class (Bowman, et al., 2001, p. 6)\textsuperscript{36}. Developmental needs, abilities, and learning dispositions and strategies, are central considerations in providing curricula for young children. A child at age twelve months for example can be at a very different stage of development (psycho-social, physical, language, and cognitive) and have different needs and interests than a child at say age eighteen months. While child development appears to proceed in a universal fashion for the majority of children, the rate at which it proceeds can vary tremendously. Any two children at any one age can not be expected to be at the same developmental point. Teachers of children between birth and approximately six years of age face a challenging task because development during this period is rapid and complex. Thus whole group teaching is not an effective approach for young children. Effective teachers of young children respond to individual differences (in development, interests, and temperament) as well as to group differences (e.g. language and culture)\textsuperscript{37}.

\subsection*{2.3. Teacher Qualities}

Given the young age of children and the particular complexity of teaching this age group both teacher education (including knowledge and pedagogical skills) and the teacher’s personal characteristics matter. The research evidence on children’s outcomes related to initial teacher education and professional development is covered in other syntheses commissioned by the Ministry of Education. It is beyond the scope of the present synthesis to review evidence on the personal qualities that make for an effective teacher, though it is important not to ignore these as a potential influence on children’s outcomes.

The professional literature refers to various characteristics of a “good” or “ideal” teacher of young children. There is a lack of empirical study of these characteristics. A problem is that descriptions of the characteristics of an ideal teacher reflect the values

\begin{footnotesize}
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\item \textsuperscript{32} McNaughton, S. (2002). Meeting of minds. Wellington: Learning Media.
\item \textsuperscript{36} Bowman, B., Donovan, M.S., & Burns, M.S. (2001). Ibid.
\end{itemize}
\end{footnotesize}
of the writer as well as the particular theoretical base that the writer subscribes to. For example, Feeney and Christensen (1979, p. 22)\textsuperscript{38} writes:

\textit{The most important characteristic of a good teacher is her ability to be with children and not what she does to or for children. Being with children means really being there, aware of the child and yourself in relation to the child.}

Some of the many other personal characteristics of teachers of quality described in the professional literature include:

- Good physical health.
- Emotional maturity.
- Courage to argue for what a child needs.
- Integrity and honesty.
- Self-awareness and self-evaluation, supported by reflection and professional peer support.
- Respect for children.
- Discretion in dealing with children’s problems and issues.
- Intuition.
- Professional detachment from children.
- Humour\textsuperscript{39}

It is noted here that teacher personal qualities are of importance but are beyond the scope of the present synthesis to consider in any detail.

\section*{2.4. Teachers Thinking Critically}

What makes a difference for building a strong early foundation for children’s learning is not just what teachers know, their years of experience, their level of teacher education, or their professional development, but how this in turn influences their practice. In an action-based research project which involved the delivery of professional development to family day caregivers, Wright (2000)\textsuperscript{40} demonstrated that helping teachers to become aware of their own perceptions of learning about children’s thinking can enhance their understanding and challenge their practices. Jordan’s\textsuperscript{41} doctoral research shows that when teachers can understand the differences between scaffolding (which can be dominated by adult views) and co-construction (which gives voice to the child and emphasises intersubjectivity) they are more likely to focus on extending children’s interests.

An action-based study of schema development for 10 children at two Wellington early childhood centres further highlights the need for teachers to think critically about their knowledge and practice (Meade & Cubey, 1995)\textsuperscript{42}. The researchers noted that the adults in the study became more conscious of children’s thinking and this impacted most on what resources and activities were made available to the children. Outcomes for children would have been strengthened if teachers had thought more critically about how to use this knowledge of children’s thinking to influence interactions with peers and adults.

Other syntheses commissioned by the Ministry of Education have reviewed the evidence on initial teacher education and professional development. It is noted here

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that teacher education and professional development, together with supporting curriculum resources, are essential inputs for early childhood service teaching. What makes a difference for children’s outcomes is the extent to which these inputs influence pedagogy through teachers’ critical thinking and reflection.

3. Quality Teaching for Heterogeneous Groups of Children

3.1. Child Diversity

Responding to diversity is a fundamental challenge for teachers in early childhood settings. Children are not a homogenous group. It is somewhat less of a challenge for teachers of children who share the same characteristics (e.g. speak the same language), and for teachers who are working only with children who are well known to them through blood or familial ties (e.g. in playcentre when parents are working alongside their own child). Nevertheless the vast majority of New Zealand children experience an early childhood education service outside of their whanau or home context by the time they reach five years of age. For the early childhood age group, key issues of difference include ethnicity, language background, family background (including parental income, resources, and parental education) and gender.

New Zealand children today are more ethnically diverse than adults, yet children are less likely than the adult population to have been born overseas (9% versus 23% respectively). Twenty-one percent of under-five-year-old children identify with more than one ethnic group compared with just 6 percent of adults. Thus for example, “many Maori children live in ethnically mixed households in a wide range of social and economic circumstances” (Angus, 2001, p.10). Ministry of Education statistics indicate that as at 1 July 2001 Maori accounted for 18.1 percent of all enrolments in early childhood services, Pasifika children 6.4 percent, Asian, 4.8 percent, and European 69.4 percent. Population projections indicate an increasing proportion of children will have Maori or Pasifika ethnicity in the future. Already this trend is showing in the birth rate with two-fifths of babies born in 2001 being of Maori or Pasifika ethnicity. The challenge for teachers in early childhood settings will be in responding to increased cultural and multiple ethnic diversity.

While the majority of Maori children attending early childhood education go to a kohanga reo, more Maori are also choosing to use mainstream early childhood services. In the year July 2000–1 kohanga reo had the largest decrease in the number of child enrolments (-1544) and childcare centres were the only service with an increase in enrollments (+1961). There is increased responsibility on teachers in

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44 Whanau is defined here as “a group of kin who act and interact with each other for common purposes, that is, who have a degree of corporate or common life … These kinsfolk are of two kinds: a core group of members descended from a common ancestor or ancestral couple, and spouses and children who come from outside this core descent group” (p. 20). Metge, J. (2001). Family and whanau in a changing world. In S.Birks (Ed.), Proceedings of Social Policy Forum 2001. Issues Paper No. 11. Palmerston North: Massey University.

45 Apparent participation of 4 year-olds in 2001 was 98.5% (this figure may be inflated by children attending more than one service). Results from the schools July 2001 Ministry of Education collection indicated that around 91% of new entrants had attended at least one early childhood education service, and this figure does not include 3.5% of year one students whose early childhood service attendance could not be established.


mainstream services to use both English and te reo Maori in their interactions and work with children, parents, and whanau.

Researchers of early childhood programme quality have long known that quality can not be studied without consideration of the influence of family background variables, especially socio-economic status and parent education on children’s outcomes. The accumulated research evidence indicates that family income is more important during the early childhood stage than at any other stage for schooling outcomes. The findings of the New Zealand Competent Children Project highlight the huge influence of family income, education, and occupation on children’s outcomes. The results of the project are significant in terms of this synthesis because they demonstrate that child diversity can not, and should not, be ignored by teachers. Attendance at an early childhood service was statistically associated with positive improvements in children’s social, communicative, and motor skills as well as perseverance competencies. Home-background variables were more strongly associated with children’s cognitive competencies. For early childhood services outside of children’s home and whanau environments to add value, especially in cognitive areas such as mathematics and early literacy greater recognition of diversity in children’s social capital – as picked up on in the Competent Children study – is needed.

Gender seems to be a commonly overlooked point of heterogeneity in relation to children’s experiences and outcomes in early childhood education. The percentage of boys and girls enrolled in an early childhood service is similar (51.4% and 48.6% respectively). By the time they reach school girls as a group outperform boys in all three Ministry of Education School Entry Assessment tests – number, literacy comprehension, and literacy performance. Early childhood research on the causes of these differences in outcomes by the time children reach school is lacking. It is a tradition that children in the early childhood age group are taught by women, and this tradition or stereotype continues today. In a small interview-based study of New Zealand male and female early childhood teachers perspectives on the inclusion of male teachers, the interactions of male teachers with children were reported to differ from female teachers in respect of more involvement in children’s play, a greater emphasis on having fun and making learning enjoyable, and getting down to the children’s level to understand viewpoints and feelings. Government policy in Sweden has been to get more men interested in early childhood teaching as a profession. A study of five to six year-old children in Swedish early childhood centres included an examination of the effects of the inclusion of male teachers on the staff. No difference was observed in the range of activities children participated in but differences were found in relationships between children and teachers in centres where there was a male teacher on the staff. In part-time preschools with a male teacher on the staff children engaged in more interaction and dialogue with the

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51 Overseas research has also suggested that early childhood programmes are failing to close the (relative) gap in outcomes between children of middle and working-class backgrounds, and that participation in early childhood education without recognition of child diversity can actually extend social class differences. Kutnick, P. (1994). Does preschool curriculum make a difference in primary school performance: Insights into the variety of preschool activities and their effects on school achievement and behaviour in the Caribbean Island of Trinidad: Cross sectional and longitudinal evidence. Early Child Development and Care, 103, 27-42.
teachers (regardless of teacher gender) and were engaged in less passive behaviour.

3.2. Making a Difference for Diverse Children

Considerable research into early childhood programme quality has shown that where an early childhood centre has particular features (e.g. small group size) significantly better outcomes result (as measured on child development tests, behavioural scales, and teacher/parent reports) for children from low socio-economic and disadvantaged (usually ethnic minority) groups. While respecting the insights this body of research on early childhood programme quality has provided for policy development and funding decisions, this synthesis emphasises the importance of and the necessity for high quality teaching to improve outcomes for diverse children. It draws together the evidence on what teachers can do on a daily basis to optimise outcomes.

As outlined above responding to heterogeneity is a major challenge for teachers of children in the early childhood years. The current focus on participation in early childhood education and high-quality programmes cannot alone make a sufficient difference to outcomes for all children, whatever their age, gender, cultural or family background characteristics. There will always be a “William” who will receive little interaction from teachers and little benefit from being in an early childhood service unless more attention is paid to the quality of teaching. As this synthesis shows what works in teaching for “advantaged” children also works for children who are “at-risk” of later school educational failure. Thus the characteristics of quality teaching outlined in this synthesis do not apply to any one group; they apply to diverse children.

4. Child Outcomes

4.1. The Kinds of Outcomes Considered in this Synthesis

Attention is paid here to children as emergent learners. It is recognised that children’s learning outcomes are strengthened when teachers view cognitive development, social-emotional development and physical development as complementary.

Learning outcomes include knowledge and understanding, skills, and attitudes alongside the development of dispositions to learning. Cultural identity and children developing a sense of belonging, contribution and wellbeing are important. Children’s capacities for communication and exploration are also key considerations when looking at the outcomes of early childhood education experiences.

These outcomes highlight the richness of learning that occurs during the early childhood period whilst also suggesting the complexity for teachers of responding to what constitutes learning outcomes for young children.

55 The reverse was found in full-time preschools, however, there were disproportionately fewer full-time centres (n = 6) with a male member of staff compared with part-time centres (n = 29) in the study. In two of the full-time centres the male member of staff did not work with children.


4.2. The Importance of Focusing on Outcomes

Environmental circumstances can compromise child outcomes. Quality teaching in the early childhood years can make a major difference to children’s later achievement at school, and reduce the adverse effects of risk factors such as poverty. From their literacy intervention study in Mangere and Otara, Phillips, McNaughton and McDonald (2001) conclude that low rates of literacy are neither inevitable nor unchangeable in low-decile schools. Early childhood and new entrant teachers can assist children at risk of later school failure to develop competency in literacy to expected national levels of achievement. Quality teaching in early childhood education can result in gains that carry through to primary education:

Interestingly, the early childhood children who went into classrooms [in decile one schools] without the primary intervention made very similar gains to those who went into classrooms with the primary intervention. This suggests that their increased expertise at entry may have allowed them to engage with a variety of programmes, or that their teachers, even without the professional development, were more able to pick up on the expertise that they had (Keith, 2002, p. 12).

Enrollment in an early childhood group programme means that children spend time with adults (teachers) and other young children in organised, usually institutional settings. Whether and the extent to which value is added to children’s outcomes is important to families. New Zealand research has highlighted that families have specific outcomes in mind for their children when enrolling in early childhood programme. They want early childhood education to make a positive difference to their children’s learning and socialisation. For example, Rongo (2001) reports that Cook Island parents and caregivers expect children will be helped to come to terms with their cultural identity and learn to speak, understand and reply in the Cook Islands dialect of their respective Island. Parents and caregivers want their children to learn to participate in group activities and follow instructions. Cloher and Hohepa’s (1996) study indicates that families who enrol in a Kohanga Reo do so because they want children to learn to speak Maori, and Maori values and protocol for the marae and home. Farquhar’s (1993) research shows that parents at four different types of early childhood programmes (playcentre, kindergarten, kohanga, and childcare) placed emphasis on children’s mental health and social development, expecting that children will feel safe and secure and cared about, develop self-confidence and independence, and learn to get along with other children.

5. Best Evidence Synthesis Approach

5.1. Challenges

The main challenges in the preparation of the synthesis were:

- That approaching early childhood education in terms of child outcomes is antithetical to the value placed by early childhood professionals on children’s

participation and play as a benefit in its own right. Evidence linked to outcomes for children is focused on in the synthesis, and, where there is high quality relevant evidence linked to learning processes for children, this is also included.

- That traditionally educational improvement has been approached through looking at resources, the curriculum, and children’s activities. A focus on children’s outcomes in this synthesis necessitated that the ways that teachers – and not the programme – add value to children’s learning be examined and brought to the fore.

- That researchers have mainly concentrated on providing descriptions of best practice based on professional views and experience, developing resources to support best practice, and investigating the effects of variations in programme variables and different types of curricula that can be controlled through regulation and policy. This meant a great deal of reading was available but in the end only a comparatively small amount of literature was found to be based on evidence, with conclusions supported by data, and of use for illuminating what teachers can do to support and extend children’s learning.

- That we know a lot more about what constitutes best practice according to experience and professional opinion than we have research evidence.

Best practice seems to be ahead of best evidence

- That there is a lack of empirical evidence on quality teaching linked to improved child outcomes, especially New Zealand research and contextually relevant international research. This meant that on some aspects of quality teaching the best evidence was also the only research evidence.

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65 In Meade, A. (1985a). Ibid. pp. 89 –91, there is some discussion of the difficulty teaching professionals have with the concept of outcomes due to a narrow interpretation of an outcomes-based approach as necessitating a focus on cognitive development alone, highly structured teaching approaches and child development testing. Outcomes in this synthesis include social development and it is recognised here that play-based curricula benefits children.
• That it cover research on teaching and learning for children of all ages and abilities within the early childhood years – from babies through to toddlers and up to 6 year-olds.

• The difficulty of generating characteristics of quality teaching from the literature that are applicable to the range of teachers children can experience. In the early childhood years parents and other family members, including older siblings, have a significant role in children’s learning and yet the majority of literature considers teachers more narrowly as professionals who work with children in groups in an organised, usually institutional, setting. The challenge in the preparation of the synthesis was to develop generic characteristics of quality teaching that had meaning and application whatever the setting or context of early childhood education and whomever the teacher may be.

5.2. Methodology

Given the challenges, the synthesis represents an attempt to begin to build a knowledge base about how teachers of young children can most effectively influence learning leading to better outcomes. The literature search conducted was wide ranging and not restricted to any particular theoretical or professional perspective or range of topics/areas within early childhood education. No prior decisions were made about the possible or likely content of the synthesis — beyond the Ministry of Education brief that it was to focus on learning and teaching in early childhood education for diverse children and that evidence selection needed to focus where possible on outcomes. The content of the synthesis and the generation of principles of quality teaching therefore came out of the wide open-ended literature search.

The formative approach meant that a way had to be found to systematically appraise and select the evidence, and piece it together to provide support for and enable the generation of a set of generic characteristics of quality teaching. The metaphor of the “jig-saw puzzle” central to the methodology of the synthesis on teaching for diverse students in schooling66 guided the process of building this best evidence synthesis on early foundations. As further evidence is identified and subsequent research is conducted in New Zealand it will be possible to build up a more complete and stronger picture of the ways teachers positively influence children’s learning outcomes.

Recommendations for conducting and preparing a written systematic review of research were found to be most helpful in informing the process of preparing the synthesis (Boaz, Ashby, & Young, 2002)67. Systematic reviews differ from the traditional reviews of research which range in size and scope and selectively include research (and sometimes also the author’s personal opinions and material produced from interest groups and policy documents) to justify a position, an intended research programme, or policy change68. Another traditional form of literature review brings all or as much as possible of the research evidence on a specific area together and summarises it, for the dual purposes of advancing knowledge and indicating possible future research directions69.

68 For example, see Podmore V.N., & Meade A. (2000). Aspects of quality is early childhood education: Literature review series. Wellington: NZCER.
A systematic review does the following:

- Explains the plan followed for identifying, appraising, and collating the evidence so it is possible for the review to be repeated again and for other people to extend and further refine the review.

- Clarifies the purpose of the review and the specific question it addresses in order to enhance its usefulness for others.

- Seeks to identify as much of the relevant research as possible and not just the well-known or the well-promoted studies.

- Makes decisions on the inclusion of evidence explicit and takes into account the limitations of the studies included through the relative emphasis placed on these in the review.

- Systematically brings together the evidence based on differences and similarities in the outcomes reported.

- Aims to be as objective as possible in the process of evidence selection and reporting.

- Acknowledges the need for further up-dating as more evidence comes to light.

- Is written in a way that is accessible and potentially useful not only for policy-makers and other researchers but also for practitioners and members of the public who have an interest in the topic for helping to inform their decisions.

### 5.3. Criteria for Best Evidence

As stated in Section 5.1, one of the main challenges encountered in preparing the synthesis was a paucity of research, especially New Zealand research, that was both of an acceptable research standard and made links between teaching and learning processes and outcomes for children. Criteria for an acceptable research standard included: clear descriptions of sample and methods, data clearly explained, and conclusions supported by the evidence. Research that had been subject to peer review or accepted for publication by an external independent publisher, reports of major studies, and supervised student research theses were given priority in the literature search over position papers, professional literature and materials, and research that upon reading was found to take an ideological or a political perspective without adequate supporting data. No one type of research methodology was preferred over another. The studies considered ranged from action-research and small-scale research projects through to larger and longitudinal studies.

The search focused on finding consistent evidence of what has a positive impact on children’s learning and outcomes. There is quite a lot of evidence of negative influences, such as the instructional approach to teaching and “hot-housing” found in United States of America early childhood programmes, however the evidence related to negative influences tends to be country-specific and often does not have direct relevance to New Zealand early childhood philosophical beliefs and practices. A decision was made early in the literature search to seek positive examples of evidence of what can make a difference to children’s outcomes, rather than evidence of what does not work or is identified by researchers in their findings as making little difference. Focusing on evidence related to quality teaching for making a positive difference to children’s learning outcomes was considered more helpful for informing and increasing pedagogical effectiveness than detailing the negative evidence.
A search of international and national research databases was conducted with the skilled assistance of the Ministry of Education’s library staff. This included a search of New Zealand university library reference lists for any relevant student theses. Literature reviews in professional and academic journals and other publications were not used as primary sources, but provided useful support for identifying possible relevant references to follow-up on. A call was put out to members of the Childforum New Zealand Early Childhood Research Network for information on any relevant research that they or their students may have carried out. The writer also drew on the extensive literature in her personal collection, and used her contacts within the early childhood research community to try to source any further research that had not been identified in the initial data base searches. The search though is by no means complete, and even as this synthesis is being written further references are coming to light as possibilities for inclusion. These will need to wait for consideration in subsequent iterations of the synthesis. However, in spite of this initial wide international and national search and use of extensive contacts in the local research community to identify research that may not be well-known, it was surprising just how little of the research provided evidence that was explicitly linked to child outcomes.

6. The Question This Synthesis Addresses

The synthesis addresses the question of:

**What works in early childhood teaching for maximising children’s learning outcomes and reducing disparities amongst diverse children?**

The evidence gathered and reviewed in the preparation of the synthesis has highlighted a number of characteristics of quality teaching. These are outlined in Section 7. It should be noted that the characteristics of quality teaching outlined here reflect the current state of our knowledge about teaching and learning in early childhood education; which is shaped by inter-linking factors such as research funding priorities, early education policy, and practices and ideologies in the early childhood field. The characteristics of quality teaching outlined here are considered to be a starting point for further discussion and work on identifying the most effective pedagogical strategies for improving the learning outcomes of diverse children in the early childhood years.
7. Characteristics of Quality Early Foundations Teaching

7.1. Effective Pedagogy Involves Working With Children as Emergent Learners

Research-based Features

- Teaching is focused on children as learners and on their learning.
- Quality teaching facilitates children’s dialogue, cooperative and independent work, motivation and dispositions characteristic of emergent learners. It also provides conditions that support learning, e.g. opportunities to participate in interactive situations and a wide range of cognitively-oriented activities.
- Quality teaching approaches cognitive and social-emotional development as complementary to achieve better outcomes in children’s learning.
- Learning goals focused on knowledge, skills, dispositions, and feelings can best serve children’s development in the long term.

Children as Emergent Learners

Recognition of children as emergent and powerful learners is not a given in early childhood education, neither within early childhood services nor in children’s family homes. Many researchers have argued\(^70\) that it should be a given and widely understood by all who work with young children; and perhaps in the future it will be, but at present this needs to be signaled as a core characteristic of quality early foundations teaching.

Professional beliefs about appropriate curricula in the early childhood years can obscure the goal of making a positive difference for children’s learning. Most programmes in early childhood centre settings have subscribed to the “developmental play” curriculum approach. Teachers have tended to take a hands-off-approach to involvement in children’s learning, apart from providing a well-planned and structured physical environment\(^71\)  \(^72\). Separate curriculum documents for early childhood and primary schooling have further accentuated the cognitively oriented approach of schooling and reified resistance in the early childhood sector to being seen to prepare children for school.

To avoid inequitable experiences for children\(^73\) within early childhood programmes an emergent approach to learning must be emphasised. Research on young children as emergent learners indicates that they are developing competencies and dispositions to learning which are important for successful adjustment to later school learning\(^74\). Parenting education programmes can increase family awareness of children as

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\(^70\) For a recent summary of research on the importance of fostering learning see Meade, A. (2002). Remembering: Knowing the moment cannot be repeated. Childrenz Issues, 6(2), 12 – 17.


\(^73\) See Chapter 4 on the “visible and hidden curriculum” in Meade, A. (1985a). Ibid.

\(^74\) Cullen, J. (1998b). What do teachers need to know about learning in the early years? Keynote address to Early Childhood Development Unit seminar, 23rd April. Auckland.
learners and how to support children’s learning, which in turn increases children’s competencies and learning outcomes\(^7\).

Phillips, McNaughton and McDonald (2001)\(^7\) point to the importance of teachers holding expectations for what children can achieve and providing appropriate interactive support to help children to get into an upward spiral of learning. Blatchford, Burke, Farquhar, Plewis, and Tizard (1989)\(^7\) show a significant association between teacher expectations for children’s achievement in learning and their actual learning outcomes by the end of the year in British reception (equivalent to New Zealand new entrant) classes, that could not be explained either by children’s attainments prior to starting school, or teacher use of praise and instructional contact with children. It was found that children whom teachers viewed more strongly as learners and for whom they held higher expectations were given a wider range of cognitively-oriented activities.

Cullen’s (1998) review of the evidence suggests that emergent learners have the following characteristics:

- They are developing independent strategies which assist their learning;
- They engage in collaborative learning activities with peers;
- They are developing an understanding of self as a learner;
- They are acquiring a knowledge base which reflects their experiences in a variety of contexts of learning, for example, emergent literacy;
- They are developing an awareness of their own learning and can conceptualise about it; and
- They are motivated to extend their knowledge and skills through independent and collaborative activities (p. 5).

### Teaching Priorities

Smith (1996)\(^7\) argues that teachers have a powerful role to play in enhancing children’s learning by bringing together the educational and care functions when working with children. This argument is supported by research from a major longitudinal British study\(^8\) on effective pedagogy in the early childhood years. The findings indicated that although teachers (including parents and teaching professionals) tend to prioritise social development, the best outcomes for children aged three years and over are achieved in settings where cognitive and social development are seen by teachers to be complementary. The message from research is that a focus on children’s social development should not subvert attention from children as emergent learners.

In early childhood settings, such as Kohanga Reo where cultural development is an explicitly stated programme aim, it could be argued that a simultaneous and complementary focus on cognitive development would strengthen learning outcomes for children in both cultural and cognitive domains. For young children, it could be argued that physical development, such as being able to crawl or to hold a pencil correctly for drawing and emergent writing, should also be considered to be complementary to cognitive and social development. However, while the general child development literature would support this argument in most instances, empirical evidence of clear links between physical and cognitive development for children’s learning outcomes is not available.

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Establishing Learning Goals for Long-Term Outcomes

A popular belief in early childhood education, supported by numerous international studies, is that early formal instruction, for example in reading, can result in learned helplessness and a feeling of failure. However, Stipek and Greene's (2001) review of the literature on achievement motivation in young children suggests that the problem can lie not in the activity itself but in the social context of an early childhood education setting. The social setting can have a powerful effect on whether or not stressing academic skills and performance undermines children's achievement motivation and dispositions to learning. An atmosphere created by teachers that nurtures learning goals can strengthen children's motivation and dispositions to learning and still emphasis cognitive skills and performance goal setting.

An ERIC Digest reviewing evidence on the question of what should be learned by young children identifies the following four categories of learning goals:

- Knowledge (defined as consisting of facts, concepts, ideas, vocabulary, stories, and aspects of children's culture);
- Skills (including physical, social, verbal, counting and drawing skills that are small units of action which are easily observed or inferred);
- Dispositions (defined as habits of mind or tendencies to respond to certain situations in certain ways, for example there is a difference between having reading skills and having the disposition to be a reader);
- Feelings (defined as emotional states, that may be innate or learned such as feelings of confidence, belongings, and feelings towards teachers and peers).

All four learning goals are argued in the Digest to be important for maximising learning outcomes in the long-term. The benefits of a focus on skills alone, for example, has been found to have short term positive effects that fade if children do not also in the process acquire the disposition to use them.

7.2. Pedagogy is Informed by Contextual Knowledge of Children's Learning

<table>
<thead>
<tr>
<th>Research-based Features</th>
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<tbody>
<tr>
<td>Pedagogic practice includes systematic observation of children and feedback to children that matches their level of understanding.</td>
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<tr>
<td>Children's learning in other social/cultural contexts (especially the home) is recognised and built upon in early education services.</td>
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<tr>
<td>Quality teaching builds partnerships with children's family and whanau.</td>
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McNaughton (2002) identifies three routes to teachers gaining the knowledge and understandings they need to work effectively with diverse children by personalising their teaching approaches. First, when children are regarded as informants teachers are able to learn more about children's backgrounds, skills and interests. Teachers can learn about children through systematic observation and getting to know children very well, well enough to provide feedback at an appropriate level and share their


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understandings of children’s learning with them. Second, common experiences can be created by teachers so the experiences themselves become the source of common topics of conversation and shared understandings “thereby reducing some of the work of discovering these things” (p. 113). Third, effective communication between teachers and families can help to reduce the consequences for children’s learning of the inevitable mismatch between settings.

**Systematic Observation, Assessment and Feedback**

In the British study of effective pedagogy Siraj-Blatchford et al. (2002)\(^{84}\) report an association between formative assessment, curriculum differentiation for children, and curriculum matching in terms of cognitive challenge, and “sustained shared thinking”. Thus, for example, formative assessment of children’s learning can lead to the provision of more experiences and activities that are more cognitively challenging\(^{85}\). The better teachers in an early childhood setting did on these three dimensions, the more effective they were in supporting children’s learning progress. The study’s evidence confirms current professional thinking\(^{86}\) on the importance of assessment and feedback to enhance children’s learning experiences and outcomes.

Tizard (1985)\(^{87}\) observed that British early childhood teachers assumed they were providing a language rich environment for working-class girls but both the quantity and quality of children’s language experiences in the home was superior. The cultural mismatch occurred because teachers were “responding to the apparent, rather than the real, abilities of the working class children, tending to underestimate what they could achieve, and presenting them with inappropriately low-level tasks” (p. 2).

**Building Upon Children’s Learning in other Social/Cultural Contexts**

As the cartoon on page 23 illustrates, when early childhood teachers can not visit and participate in family life, and parents are unable to spend much time in the early childhood programme, it becomes even more important to establish and be committed to maintaining good communication about children’s learning across the home and centre settings. For example, families can be asked to collect examples of writing in everyday family activities such as children’s naming of their pictures. Profiles of children’s developing literacy expertise can be developed with families to help teachers learn about and connect with family systems of developing literacy expertise. Goodridge’s (1995)\(^{88}\) case study of 19 children’s writing development in 18 families at home and when starting primary school found that the teachers’ ability to take account of the role of culture in children’s literacy development was associated with the strength of connections teachers made with children’s processes of learning as writers at home. While her study focused on children’s transition to school, the findings contain an important message for early childhood centre teachers about the value of supporting family cultural tools for children’s learning:

> Rather than knowledge about writing being perceived as curriculum-bound and as being solely in the domain of, and the responsibility of the teacher to equip children with skills, knowledge of writing in families should be used pragmatically in schools … [for] developing children’s literacy in the community in which they live (p. 339).

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\(^{84}\) Siraj-Blatchford et al. (2002). Ibid.


Managing Mismatches

So it turns out that teachers should adapt their own actions to the varied needs of children from different upbringing environments (micro-systems); and a knowledge of the socialisation strategy applied in the family home is one of the factors conditioning the effectiveness of the kindergarten’s influence [on Polish children at 4- and 7-years of age] (Karwowska-Struczyk, 1998, p. 243).

The importance of cultural match between the settings in which early education takes place, especially the home and the early childhood service(s) children attend, but can also include the church and other significant settings in children’s lives such as the marae, has strong empirical support. Most research has concentrated on investigating cultural differences specific to ethnicity and social class. The evidence provides a sound basis for ensuring links between the cultural contexts in which children are socialised. From the children’s perspective, however, the effectiveness of these links can be weak if teachers base pedagogy on their personal views of group differences and they are not adequately aware of children’s own family cultural contexts.

Ensuring a match of cultures across socialisation settings is a complex characteristic of quality teaching for teachers to meet. Cultural and ethnic group labels can not stand for “singular or homogeneous descriptions of socialisation practices” (Goodridge and McNaughton, 1994) report that while Maori, Samoan and Pakeha families were different in their group profiles, within Maori and Samoan families in particular there was also considerable diversity of ideas about supporting young children’s literacy and socialisation practices.

One strategy that worked for increasing cultural continuity for children in Australia from culturally and linguistically diverse backgrounds was the employment of bilingual

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workers to support children and assist communication between children, their peers, their early childhood centre teachers and parents. Bilingual support workers helped to raise early childhood centre teachers’ and peers’ awareness of family cultural practices and worked with teachers to find ways that children’s own family cultural needs could be better accommodated in the group programme. Another strategy is for teachers in early childhood services to visit children in their own environment and to get to know families through informal contact. Renwick’s (1988) interviews with kindergarten teachers revealed that they perceived the informal contact they had with parents to be the most valuable for developing positive relationships and getting to know families. However, cultural differences were cited by teachers as one reason for not being comfortable about visiting families at home.

Hohepa, Hingangaroa Smith, Tuhiwai Smith and McNaughton (1992) concluded in their study of Te Kohanga Reo that the early childhood service provides a culturally structured environment in which language played a vital role in children’s enculturation. Language routines and language focusing strategies, namely modeling and questioning, reflected and supported culturally preferred concepts and beliefs which in turn provided specific language mechanisms for teaching in Te Kohanga Reo. One example was the use of the concept of Whanaungatanga which provided the context for the “Ko wai au” routine to assist children in becoming aware of their whanau ties. A third common language teaching strategy was prompting and while the researchers noted that this strategy provided children with the least expressive language, it nevertheless appeared to be used by teachers with considerable skill based on shared knowledge and familiarity with children’s level of language development in Maori.

Building Partnerships

Building partnerships between schools and families is more than simply listening to each other. It is about the joint construction of outcomes and pathways, and the active positioning of indigenous families as knowledgeable... about their children and culture (Fleer & Williams-Kennedy, 2001, p. 52).

Joint construction can focus on continuity of learning from the home context to the early childhood centre, from the centre to the home, and a combination of both pathways. A good example of the joint construction of outcomes is the study by Royal-Tangere (1997) of the transference of cultural values though language from a total immersion Maori language Te Kohanga Reo to the home, and the role that her child Rangi played in her language acquisition across the two settings. Te Kohanga Reo provides a model of how the language and knowledge of one cultural group can be validated and in turn taken up in children’s homes to produce powerful effects not only on the learning of children, but also other family members.

Evidence from the British study of effective pedagogy in early childhood education pointed to parent involvement in children’s learning activities at home being strongly associated with better cognitive attainment. Further, children in early childhood centres whose teachers encouraged continuity of learning between the centre and the home achieved consistently better outcomes. The researchers, Siraj-Blatchford et al (2002), suggest that better outcomes through the encouragement of continuity of learning

between the two settings probably resulted because families had a greater understanding of what early childhood centre teachers were trying to achieve and this in turn influenced interactions and activities for children’s learning in the home.

Continuity of learning across home and early childhood programmes can be promoted by early childhood centre teachers in at least two ways:

- By supporting parents to develop their pedagogical capacity through involvement in children’s activities at the centre and teachers making their own pedagogy more conscious and explicit, and
- developing strategies to cross the home-school boundary and involve families in children’s learning at the early childhood centre (even when they are unable to physically participate in the programme due to employment or other reasons).

Athey (1990) concluded from an examination of parental participation in learning about and extending on children’s development of schemas that participation resulted in an “ever-increasing” interest in what children were saying and doing. The effect of participation can be profound because “nothing gets under a parent’s skin more quickly and more permanently than the illumination of his or her own child’s behaviour” (p. 66). Tijus, Santolini and Danis (1997) found in French intercultural early childhood centres for low socio-economic families that the presence and involvement of other parents alongside the professional teachers created an environment that was richer in cognitive interactions. The study indicated that for children from low socio-economic backgrounds the effects of their disadvantage can be attenuated by encouraging parents to be involved in the daily and educational activities of the centre. When parents participate, and staff allow them to participate in this way rather than allocating parents practical tasks, they form an understanding of both what to do in a given situation and what children are trying to do. This leads to parents facilitating children’s engagement in more complex cognitive interactions.

Savell and Anthony (2000) trialed the introduction of newsletters to communicate with families about mathematics in junior school classrooms with suggestions of ways for families to support and extend on what children were learning at school within the normal routines at home. This strategy supported communication about the mathematics programme at school, and recognised the role of families in building on and adding further to children’s understanding of mathematics. It did not require parents to participate in the school programme in order to observe and find out for themselves about their child’s learning and how the teacher was teaching mathematics. Taking a proactive approach to communication with families can work for increasing parent awareness of their children’s learning in the centre context and for supporting families to reinforce and extend in the context of family culture the learning outcomes that centre teachers are focused on for children.

Bridge (2001) carried out an action based study to increase the involvement of parents at her rural early childhood centre in England. First she asked parents and children to plan an activity together at home. Second children’s play was observed at home. For example, the project approach is one way that parent involvement can be encouraged. See Whalley, M. (2000). Parent’s involvement in their children’s learning. *Early Childhood Practice, 2*(1), 36-57. Meade (2001) reports on her observation of a centre in the United States that used the project approach. Meade noted that as parents become more involved in the curriculum, the children helped to facilitate their parents involvement further as a resource to other children and to teachers. See Meade, A. (2001). The project approach and parent involvement. *Early Childhood Practice, 3*(1), 6 – 14.


the centre during ‘plan-do-review’ time. Third parents were asked about their involvement in the centre through planning. Of note was the finding that involving parents in planning activities with their child resulted in children producing “living play” at the centre based upon family culture. Observing living play enabled teachers at the centre to develop an improved understanding of children’s learning. Parents reported that they felt they were on more equal terms with teachers because they knew what their children had been doing. Parents and teachers all felt that they were more involved in children’s learning than before, because of the shared planning that children and parents had done at home and how this influenced children’s play at the centre.

**7.3. Effective Teachers Use Content Knowledge Confidently to Support and Extend Children’s Learning in Interactive and Play-based Situations**

<table>
<thead>
<tr>
<th>Research-based Features</th>
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<tbody>
<tr>
<td>• Teachers draw on content knowledge to extend children's thinking and inquiry, and support their cultural identity and sense of contribution and belonging.</td>
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<tr>
<td>• Teachers have confidence in their ability to communicate and demonstrate content knowledge.</td>
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<tr>
<td>• When teachers do not have the necessary content knowledge to support children’s questions and needs they access information with children (e.g. through books, the Internet, by asking community specialists and family elders).</td>
</tr>
<tr>
<td>• When teachers are unsure of the accuracy of their content knowledge on a particular topic they check their understanding and research further into it.</td>
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**The Importance of Content Knowledge for Effective Teaching**

There is strong argument for teachers’ use of content knowledge, including subject-based and general knowledge, to build on children’s existing understandings and to foster new learning\(^\text{102}\). United States experts have concluded from their review of the empirical evidence that “children who have a broad base of experience in domain-specific knowledge (for example in mathematics or an area of science) move more rapidly in acquiring more complex skills” (Bowman, et al., 2001, p. 8)\(^\text{103}\). Teachers who use knowledge confidently to support and extend children’s learning assist children to construct “an identity and sense of belonging in relation to the values and goals of the communities” they live in (Hedges, 2003)\(^\text{104}\). For example, Hohepa et al (1992)\(^\text{105}\) provides the following example of a trainee kohanga teacher’s attempt to engage with a child through the “Ko wai au” (Who am I) routine:

**Example 1.** A trainee (Wh) begins an interaction by asking how old R is and then proceeds to ask who R’s parents are. R is confused by his, as this is not the pattern of a “Ko wai au” (Who am I?) routine she is familiar with:

**Wh:** E hia o tau, R ______? (how old are you, R ______?)

**R:** E wha! (Four!)
In contrast, the outcome for children can be quite different when the teacher has a sound knowledge of the routine and uses her (his) knowledge to assist children to develop their understanding and skill in following the routine:

**Example 2.** Two whaea [female elders] and 12 children are grouped together. Whaea initiates the following long interaction explaining that before they start their painting activity they should have a time for Mihi (greeting):

**Wh:** Me hunhuri haere taatou ki te mihi ne? (We should go around to greet, alright?)

**Ch:** Ae. (Yes).

**Wh:** Tuatahi, ka tuu koe ki te mihi, ki te kii ko wai too ingoa. (First, stand to greet, to say who you are).

**Ch:** Ae. (Yes).

**Wh:** Me himenea e piirangi, ko wai to maamaa, ko wai to paapaa, me eeraa momo koorero ... (If (you) want to, who is your mother, who is your father, and those sorts of talk).

(Several children stand, mihi; saying a form of hello, e.g. "kia ora, teena koutou", and then saying who they are through the "ko wai au"routine. T volunteers to have a turn).

**Wh:** Ko wai atu? (Who else?)

**T:** Ko, ko au! (Me!)

**T:** (stands) ko, ko _______ taku, Ko _______ tuku paapaa. Ko _______ tuku maamaa. Ko _______ tuku tuahine. Ko, um, _______ tuku teina. (______ is my father. ________ is my mother. ________ is my sister. ________ is my younger brother) (pp. 338 - 9).

Subject knowledge is the factual and conceptual knowledge required for teachers to accurately convey information or explanations. General knowledge is the knowledge needed for everyday living including social and cultural. Pedagogical knowledge refers to how teachers use content and general knowledge to teach effectively and support children’s learning processes and outcomes. According to the findings on effective pedagogy by Siraj-Blatchford et al (2002) a good grasp of the appropriate content knowledge is a vital component of pedagogy in early childhood education, and just as important as at later stages of education.

Young children are naturally inquisitive - they ask "why" questions, and they are interested in the "what" and "how". Children are learning about the community they live in (for example, how to cross the road safely), about their environment (for example what really happens to a worm if it is accidentally cut in half during gardening), and about their culture. Children's interests alone are insufficient as a basis for extending children's learning and for teachers planning (Hedges, 2003). Cullen (1999) concludes that teachers' subject content knowledge must be enhanced to support children's domain learning in early childhood programmes.

**Content Knowledge as a Vital Complement to the Implementation of the Te Whaarki Early Childhood Curriculum**

New Zealand's early childhood curriculum Te Whaariki does not emphasise content knowledge. An emphasis on content knowledge could be inappropriate and risk a downward shift of the New Zealand Curriculum Framework for Schools into the early...
childhood years. As one of Te Whaariki’s author’s in a later research project on assessment expressed:

*The community must decide to what extent the school curriculum should further push down into the early childhood years, and particularly if in doing so there is any trade off against the early childhood curriculum principles and goals (Carr, 1998, p.3).*

However, research into the place of content knowledge in the early childhood curriculum suggests that early childhood philosophy is not undermined when teachers use content knowledge to support and extend children’s learning in interactive and play-based ways. Research by Haynes (2000) into the outcomes for student teachers of learning about curriculum subjects in the school curriculum and Te Whaariki within their Auckland College of Teacher Education under-graduate degree course showed that the school subject based approach and the holistic values-based early childhood approach were compatible and complemented each other well for strengthening student teacher thinking and pedagogical practices. Students reported that gaining subject content knowledge, in areas such as science, mathematics and English, and a greater understanding of these subjects facilitated their ability to more effectively provide the holistic approach to children’s learning expected by Te Whaariki.

Hedges’s (2003) thesis work indicates that far from damaging the integrity of the play-based and integrated philosophy valued by the early childhood profession, subject knowledge can be utilised in a way that is appropriate and relevant to children’s interests and prior knowledge. Hedges carried out a case study of an Auckland kindergarten’s field trip to Kelly Tarlton’s Underwater World and found that content knowledge was crucial for the small group teaching episodes both in relation to the excursion and in responding to children’s interests resulting from it. Hedges observed that within the everyday curriculum of the kindergarten subject content knowledge was often embedded in but not made explicit in teaching interactions with children. Hedges suggests that the debate about whether subject knowledge is important or not has overshadowed the central pedagogical issue of how teachers assist children to construct subject content knowledge.

**How Much Content Knowledge?**

Willer (1994) states that teachers of young children need to know about everything, they cannot specialise in one or only a few subjects. They need to have knowledge about everything that children experience and thirst to understand, including science, social studies, literature, mathematics, and music. Hedges (2003) reports that four-year-old kindergarten children expect teachers and parents to have knowledge to support and extend their interests, including general and specialist subject knowledge. But the teachers and parents at the kindergarten thought it unlikely that adults could have adequate enough knowledge to engage with children during all of the spontaneous teaching situations that arose. The teachers and some parents considered that a strategy of knowing how to access information on specialist topics, such as referring to books or the Internet with children, helped to address the problem of having sufficient knowledge. A broad general knowledge was considered to be important for all teachers (including parents) to have as well as the skills and motivation to acquire specialist subject knowledge as needed.

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Confidence and Accuracy of Content Knowledge

British researchers Siraj-Blatchford et al. (2002) documented that even in the most effective (excellent) early childhood programmes there were examples of teachers having inadequate knowledge and understanding of subject content to support and extend children's inquiry and learning. The United States Committee on Effective Pedagogy drew on strong evidence in recommending that teachers should be able to promote children's growth in learning in specific content areas. White and Hosoume (1993) report from a Californian three-year project to improve the science and mathematics knowledge and teaching skills of teachers, that when teacher knowledge and confidence is raised teachers provide more hands-on activities and engage more with children in their activities. Of note is their finding that as a result of increased teacher confidence children asked and answered more questions and showed a marked increase in enthusiasm and curiosity about science and their environment.

From a review of teacher education programmes in Australia Fensham (1991) reports that early childhood graduate teachers lacked a scientific background and had little confidence in their own ability to acquire knowledge in the area of science and to engage in dialogue with children about science. The main problem according to Fensham was not so much a lack of knowledge base as a lack of confidence. A review of research papers presented at the Australian Science Education Research Annual Conferences backs up Fensham's conclusion:

Research evidence presented at ASERA conferences suggests that it is not the lack of knowledge that is critical, but teachers' attitude towards and knowledge of how to conduct the necessary research (Fleer, 1993, p. 13).

In New Zealand Hedges (2003) found in her study that teacher confidence in the accuracy of their subject content knowledge meant that they were more likely to share this knowledge with children, and their confidence added value and strengthened children's understanding. Teacher confidence in their personal knowledge base needs to be addressed in teacher education and professional development (Haynes, 2000).

115 Fensham suggests that the lack of teacher subject knowledge in science may be because the vast majority of teachers are female and science has traditionally been a male domain. See Kirkwood, V. (1989). How do toasters really work? A new approach to science teaching. Arts and Education, Aug/Sept.
7.4. Pedagogy Scaffolds, Co-Constructs, Promotes Metacognitive Strategies and also Facilitates Children’s Learning in the Context of Adult/Older Child Activities

Research-based Features

- Teachers are actively involved in planning, structuring and informing children’s activities and learning experiences.
- Teachers scaffold children’s learning during play and in the context of planned and initiated focused group work.
- Pedagogy supports children to draw on their varied experiences and activities to strengthen learning in particular areas.
- Pedagogy promotes a co-construction model of learning.
- Pedagogy promotes children’s metacognitive development and strategy use.
- Pedagogy provides opportunities for children to observe and participate in everyday adult/older child tasks and activities.
- Effective teachers teach metacognitively, reflecting on their own thinking and children’s thinking as learners. They engage in reflection and planning with colleagues and use a range of methods to help to identify how pedagogical practices can be improved to benefit children and further increase their effectiveness.

The Central Characteristic

This fourth characteristic of quality teaching could be described as the ‘central’ characteristic. The first three characteristics, namely the teacher’s content knowledge, contextual knowledge about the child and family culture, and a focus on children’s emergent learning, provide the ‘base’ for teachers’ decisions about their pedagogical strategies. Hartman (2001) explains that

[Teachers need] a repertoire of teaching strategies at their disposal in order to meet the needs of different students, as well as to meet the needs of the same student at different times and/or situations. Even the “best” teaching technique is not effective all the time (p. 152)\(^{117}\).

Three further characteristics of quality teaching (outlined later in Section 7.5., 7.6., and 7.7.) ‘extend’ the potential effectiveness of teaching strategies, such as scaffolding.

Informed by Theory

Theory on effective teaching strategies informs this fourth characteristic of quality early foundations teaching. A substantial theoretical base exists to which researchers refer in their decisions of which particular aspects of teaching and learning to study or to provide a theoretical framework to interpret their findings. The teaching strategies advocated by theorists are many and there are many more variations on these strategies advocated in the literature. The review of best evidence for this synthesis has identified four key teaching strategies advocated by theorists and proven to raise outcomes for diverse children in the early childhood years. These strategies are scaffolding, co-construction, promoting metacognition, and engaging children in real

and meaningful activities and experiences. Rogoff’s \textsuperscript{118} concept of guided participation which sees children as ‘apprentices as thinking’ is noted here as being significant, but is not separately discussed as the evidence supporting it links with the evidence for scaffolding and co-construction. The theoretical concept of a ‘community of learners’, whereby learning is a collaborative participation in shared experiences, is included below in Section 7.5. relating to the organisation of the social environment for maximising children’s learning.

\textbf{What Research has Concluded about Effective Programme Approaches}

Researchers seem to agree that neither a teacher instructional approach characterised by mindless drill or academic seatwork, nor the other extreme of a free-play approach in a stimulating open-ended environment are optimal for children’s learning \textsuperscript{119}. Siraj-Blatchford et al. (2002) report that the most effective programmes are characterised by a high level of teacher input into planning, initiating and being involved in children’s activities:

\textit{Children’s cognitive outcomes appear to be directly related to the quantity and quality of the teacher/adult planned and initiated focused group work for supporting children’s learning (p.1).}

\textbf{Scaffolding}

Vygotsky \textsuperscript{120} originally proposed that children’s learning is optimised when teachers (including parents) work with children in their “zone of proximal development”. This zone constitutes what children can not do alone, but can achieve with assistance. Building upon the work of Vygotsky “scaffolding” according to Wood \textsuperscript{121}, Bruner \textsuperscript{122} and associates is a metaphor which emphasises the ways teachers can arrange children’s experiences to provide them with the most effective, timely and appropriate levels of support. The social environment, namely adults and more skilled peers, support children to actively construct their learning, to move forward, and continue to build up new competencies and understandings. The interactional support that adults and more skilful peers offer, allows children to engage in culturally valued activities in a more sophisticated way than they could on their own. Qualities of good scaffolding include \textsuperscript{123}:

\begin{itemize}
  \item Intersubjectivity: The child and adult or more skilled peer begin a task with a different understanding but a common purpose or goal and arrive at a shared understanding.
  \item Warmth and responsiveness: Children are likely to benefit most from the interaction when the adult is warm, responsive, and praises the competence of the child as appropriate.
  \item Keeping children in their Zone of Proximal Development: This is usually achieved by structuring the task and the environment so that the demands on the learner are at an appropriately challenging level and teachers constantly revise the amount of intervention according to children’s changing needs for support.
\end{itemize}


\textsuperscript{119} Katz, L.G. (1999). Ibid.


Scaffolding has become an extremely popular teaching technique in early childhood education, and research has shown that it increases cognitive outcomes for children\textsuperscript{124} \textsuperscript{125}. It is considered to be a particularly useful teaching technique for helping to close the educational gap, by providing children at risk of later educational disadvantage with early educational challenge, help, and encouragement\textsuperscript{126}.

The Wylie (1999) report on the New Zealand Competent Children project showed that at age 10 children performed higher on a range of competencies if the teachers in the last early childhood centre they attended: were responsive to individual children, asked open-ended questions, joined children’s play, allowed children time to complete activities, and guided children in the centre activities. Teachers extending child-initiated interactions and activities was found to be characteristic of the most effective (excellent) early childhood programmes in Britain (Siraj-Blatchford et al., 2002). Two teaching techniques: open-ended questioning and adult ‘modelling’ were strongly associated with better cognitive outcomes in children.


There is some question as to how well peers in the early childhood years can scaffold some aspects of the learning of less-skilled peers. In a study on the effects of play interventions on children's reading of environmental print, Vukelich (1994) found that although young children are able scaffold their peers' literacy behaviours, teachers were better able to assist children in establishing print-meaning associations:

"Teachers arranged the situation so the problem to be solved was just beyond what the child could do alone. By naturally making the prints' meaning known through playful interactions in the enriched play settings and showing children through role- and setting-appropriate behavior how signs are used, it seems teachers can enhance children's ability to attach meaning to print in their environment" (pp. 103 – 104).

Dyson (1990) asks what happens when teachers are attempting to guide children's learning but they find that children's intentions and their view on how best to fulfill these interests differs? Sources of potential conflict include: sociocultural differences between children and their teachers, differences in the perspectives of being an adult and being a child, and that children are emergent learners who are only beginning to develop metacognitive abilities. Dyson proposes that to complement the metaphor of scaffolding teachers should also look towards a metaphor of "weaving". The differences between scaffolding and weaving are described in the following way:

"Whereas scaffolding is a vertical metaphor, one that represents how those who are more skillful support children's progress within one activity, weaving adds a horizontal dimension. It suggests how children’s progress in any one activity is supported by their experiences in varied [other] activities (p. 204)."

Weaving recognises how children’s participation in a range of activities can contribute to their learning on a particular task and the outcomes of it. Diversity between the teachers’ and children’s intentions in carrying out an activity is not necessarily a problem under the weaving metaphor, instead conflict is considered to be helpful for both children and teachers.

**Co-construction**

Recently, theorists have argued that learning involves both the teacher and the learner in a process of joint co-construction. It is further argued that children’s expertise should be acknowledged through teachers and learners being equal partners in the learning process. Learning is seen as occurring within activities as a product of children’s own actions and the actions of significant others (peers and teachers including parents and whanau). The concept of co-construction reflects the Piagetian perspective of children as active constructors of knowledge, but it also acknowledges the cultural and social embeddedness of children’s learning (from socio-cultural theory). In contrast to scaffolding, co-construction enables both children and adults to have an active role in the teaching and learning process. Jordan's doctoral thesis work highlights the value of a co-construction model of learning in contrast to scaffolding because scaffolding can be dominated by adult views rather than the voice of the child:

"The teachers in my study were familiar with the idea of developing shared meaning with children. However, working within the model of scaffolding, these teachers seemed to have become subject to an over-emphasis on didactic interactions (Berk & Winsler, 1995). When analysing transcriptions of their…"

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dialogues with four year old children, teachers were concerned that they were “talking too much, and doing all the thinking” (Jordan, 2002)\(^\text{131}\).

The British study into effective pedagogy supports the co-construction model of learning and teaching (Siraji-Blatchford et al., 2002). In order for the resultant learning to be worthwhile both teachers and children must be motivated and involved in reflexive co-construction. McNaughton’s (1995)\(^\text{132}\) study of the co-construction processes which occurred when his son Harry was learning to write his own name identified three types of activities as being important for teachers to provide: ambient activities, joint activities, and opportunities for personal/individual activities.

**Promoting Metacognition**

Preschoolers daily make decisions and choices about their activities and learn to make purposeful use of the many resources available to them. As they play in the sandpit or block area and join in dramatic play, preschoolers use language to direct themselves and others, and to respond to questions and instructions from other children. The preschooler who learns to make use of these strategies in the context of the concrete, play-oriented activities of the preschool acquires a repertoire of independent strategies to use later with the more abstract tasks of the school curriculum (Cullen, 1988, p. 1)\(^\text{133}\).

Teachers can support children to become ‘self-regulated’ learners (Cullen, 1998). They can promote young children’s metacognitive awareness (knowledge) and control (of thinking and learning processes) by providing opportunities for children to participate in a range of socially interactive contexts. Cullen’s research shows the value of providing children with opportunities to interact with peers and to practice metacognitive-like activities such as planning, monitoring, reflecting and directing. Teachers who use informal prompts and interactions to encourage children to extend or complete their activities facilitate children’s metacognition (Cullen, 1996)\(^\text{134}\). Makin (1995)\(^\text{135}\) comments that because teachers are ‘significant’ in the lives of young children, what they choose to comment upon will shape what children are learning about themselves as learners. Her research of teacher use of praise in Australian early childhood centres indicates that children are being taught to be ‘good’ and ‘passive’ rather than being encouraged by praise to be active problem solvers and seekers after knowledge.

Cullen (1995)\(^\text{136}\) incorporated metacognitive teaching interventions into early childhood education programmes with positive outcomes for children. The topic focus was road safety education. A different play-based teaching intervention on road safety was introduced into three early childhood centres. At each centre two sessional groups of children received a different intervention to allow for comparisons of the effectiveness of the interventions. The intervention strategies were: learning centre, reflective dialogue, and free-play.

**Learning Centre:** An indoor learning centre was provided during indoor activity time to stimulate socio-dramatic and constructive play on a road safety theme… The teacher and assistant were available to extend child-initiated play but did not suggest themes. At the conclusion of the activity time the teacher conducted a short group mat session in which road safety rhymes and songs were practiced.

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Reflective Dialogue: The same learning centres were provided; in addition, teachers used available opportunities to encourage children to talk about their activities during the play period. At the concluding mat session, the teacher talked with the children about their play, encouraging them to reflect on what they had learned about road safety and how they could use this knowledge in their play.

Free Play: Resources which were available in the learning centres in the previous conditions were available during activity times but were not introduced as a specific learning centre and teachers did not suggest play themes or extend play. A short mat session followed the activity time to equate for direct teaching time. The teacher did not focus specifically on road safety although road safety songs and rhymes were used if requested by the children. (p. 43)

Children in the reflective dialogue intervention group showed greater recall of road safety knowledge than either of the two other intervention groups two weeks after the intervention. After two months the reflective dialogue group children also obtained higher scores for road-crossing. The findings indicated that teacher interactions and discussions which focus children upon their learning are vital for producing better outcomes.

Prince (1994) implemented a one-week teaching intervention in a kindergarten on an environmental education theme. Included were activities such as a visit to the Esplanade and a visit to the recycling centre. Each day’s activity was followed by group time with a small number of children incorporating metacognitive dialogues (with the researcher) to encourage reflection about the learning activities. A comparison group of children who participated in the activities did not receive the reflective dialogues, but did have equivalent time with the researcher on unrelated activities. Interviews with the children three months later revealed that the metacognitive group’s recall of the environmental learning was more complex than that of the comparison group who tended to recall only discrete pieces of information about the environmental activities. The findings of this study suggest that given the fact that differences occurred after such a short intervention, dialogue teaching procedures could be a powerful strategy if incorporated into the everyday practices of early childhood teachers.

Participation in What Adults and Older Children are Doing

Teacher involvement in children’s play and interactions with children have provided the focus of research and theory on pedagogical strategies to promote children’s learning. But what about children’s involvement in and dialogue with adults and older children about their activities? This is an area of study that has been under-explored by researchers. Yet what little evidence there is suggests a need for teachers to provide opportunities for children to participate in and engage in dialogue with adults about adult work and interests. Such opportunities appear to be linked to an increase in both the quantity and quality of children’s talk with teachers, as Tizard and Hughes (1984) discovered in their recordings of 4 year old girls talk with their mothers and with their early childhood centre teachers. Rheingold (1982) reports that two year olds nearly always spontaneously helped their parents with a range of household chores. When parents do paid work from home, research shows that children similarly wanted to learn about it and participate by helping out with various simple tasks (Beach, 1988). Montessori theory advocates that children’s learning is developed

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through and strengthened by doing the things that adults do, with the interactive support of their teacher.\footnote{141}

**Making a Difference for Child Outcomes through Teaching Metacognitively**

In Section 2.4. it was stated that quality teaching is characterised by what teachers do rather than what they know. Research has illuminated many examples of gaps between what teaching professionals know to be beneficial for children’s learning and what actually happens.

Meade’s (1985b)\footnote{142} research has shown that it is often the children who need the teacher’s attention most that miss out on it, while the children who demand attention tend to get it. Meade asks “is that what early educators are about? – responding to demand and not need”, knowing that the answer is “no” (p. 48).

The use of open-ended questions is a technique that teachers value for extending conversation and scaffolding children’s thinking. This is confirmed by Siraj-Blatchford et al. (2002)\footnote{143} who found that the use of open-ended questioning by teachers was strongly associated with better cognitive outcomes in children. However, only 5.1 percent of the questioning used in the most effective (excellent) centres in the British study were open-ended questions.

Smith (1999)\footnote{144} examined the experiences of 200 under two year old children in New Zealand childcare centres to evaluate whether teachers were providing them with opportunities for learning in the context of shared attention. A third of the children experienced no joint attention with their teachers. Centres where no joint attention episodes were observed between the target children and teachers had significantly lower scores on the Abbott-Shin checklist of how well centres facilitate the learning and development of children.

Hartman (2001)\footnote{145} explains that to teach well teachers need to think about what they do. They need to think about their own thinking to do with children’s learning. They also need to think about their own thinking regarding teaching. The articulation of, and reflection about, practice is important to help to close the gap between what is known to be effective pedagogy, what teachers believe they are doing, and what they are actually doing\footnote{146}. Meade’s (1985a)\footnote{147} and Wright’s (2000)\footnote{148} research suggests that it is important for teachers to have opportunities for shared thinking and reflection with colleagues, as part of planning for individual children in the centre and as part of professional development to increase their awareness of children’s thinking. Technological tools such as video-tapes and audio-recordings of children’s and teachers’ interactions and activities can be useful for supporting teachers (including parents) to think about children’s thinking and how best to engage in co-constructive and scaffolding experiences with children (Jordan, 1999b)\footnote{149}.

\footnote{144}{Smith, A. B. (1999). Quality childcare and joint attention. *International Journal of Early Years Education*, 7(f), 85 – 98.}
\footnote{148}{Wright, L. (2000). Ibid.}
When early childhood centre teachers want to improve pedagogical effectiveness the help of a researcher to document practices and to support them in reflecting on the results and in planning for improvement can be beneficial for both teachers and children. A good example is the action research project reported by Foote, Turnbull, Coutts and Stevens (1995). The teachers in a Dunedin childcare centre were concerned about how well they were meeting the needs of toddlers. The researchers discovered that the toddlers spent the majority of time by themselves engaged in activities they had chosen and participated in little sustained interaction with others. This information provided teachers with a basis to reflect on their philosophy and to re-articulate their pedagogical beliefs before planning to better meet the needs of individual children. Outcomes included girls participating more in joint play, an increase in girls’ and boys’ involvement in interactive play with peers, and a reduction of time spent by children waiting and watching. The teachers gained an increased awareness of their own thinking about children’s learning needs through the opportunity to discuss, reflect, develop, and then implement changes.

7.5. The Social Setting is Organised in Ways that Support Learning and Maximises Outcomes

<table>
<thead>
<tr>
<th>Research-based Features</th>
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</thead>
<tbody>
<tr>
<td>Teachers foster a ‘community of learning’ approach where there are many varied opportunities for collaboration and social learning e.g. strategies to resolve conflicts with peers.</td>
</tr>
<tr>
<td>Teachers take account of their role as models for children’s learning.</td>
</tr>
<tr>
<td>Children are supported to change roles between teacher and learner as their learning is scaffolded and as they scaffold the learning of others.</td>
</tr>
<tr>
<td>Interactions with diverse peers facilitate children’s cognitive and social outcomes.</td>
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</tbody>
</table>

A Community of Learners

The concept of “communities of learning” has recently become popular in the empirical literature. It is a model of collaborative learning which recognises that learners and teachers influence and are influenced by each other. In a community of learners knowledge is socially constructed. Children’s voices and individual contributions are valued, opportunities for collaborative learning are encouraged and provided, teacher assistance and guidance is given, shared understandings are developed, and learning requires changing roles in participation. In a community of learners teacher attention is focused on children as emergent learners (a characteristic of quality teaching linked to child outcomes see Section 7.1.).

Children’s disputes can provide valuable opportunities for teachers to assist children with developing strategies for resolving their conflicts, as reported by Makin (1994).

in a study of teacher decisions on intervention in children’s disputes in early childhood centres and year one school classrooms. Teachers can play an important role in shaping children’s peer interactions and social skills, especially when they treat instances of children’s conflict with each other as a positive opportunity for children to learn rather than a problem (Smith & Barraclough, 1999).¹⁵⁶

Teacher Behaviour and Interpersonal Relations with Children

The importance of focusing on actual teacher behaviour and relationships with children is underscored by the findings of a study of climates in Swedish early childhood centres (Hedin, Ekholm, & Andersson, 1997).¹⁵⁷ It was observed that children’s behaviour tended to parallel teacher behaviour. When teachers were relaxed and cooperative with each other, the children helped each other more and discussed things more with each other. Children also initiated more contact with their teachers. When the teachers were strained in their work relations, children were more often left on their own, and displayed more non-cooperative behaviour and more conflict with peers. Teachers are role models. How teachers behave and how they interact with each other will influence children’s behaviour, social interaction and therefore the benefits gained from early childhood education.

Peers as Teachers and Learners

Cullen and St George (1996)¹⁵⁸ arrived at two theoretical propositions from their study on children’s acquisition of scripts for school learning. They proposed that children seek to construct scripts for patterns in their classroom life (to understand and participate in their learning community), and that peer interactions enable children to establish relationships with each other so they can support forms of scaffolding, including metacognitive assistance to peers. The same propositions seem to be applicable to the early childhood setting. Neuman and Roskos (1991)¹⁵⁹ report on the functions of young children’s literacy-based verbal exchanges in two early childhood centre settings. Three types of discourse about literacy were identified during children’s play. These were: children’s conversations about the names of literacy-related objects, negotiating meaning related to a literacy topic, and coaching another child in some aspect of literacy in order to achieve a shared goal in play. The social setting enabled children’s collaborative engagement in literacy and this was helpful for their emergent understanding of written language.

A key consideration in the social setting, related to child outcomes, is the composition of the peer-group. Opportunities for learning are maximised when there is diversity in the peer-group, including cultural, gender, and age differences. The literature on mixed-age grouping, for example, shows that benefits are accrued especially by the youngest children when they have frequent contact with children who are at least twelve months older. Dunn, Kontos, and Potter (1996)¹⁶⁰ established that it is not the presence per se of mixed-age peers that is important for children’s learning outcomes, but how teachers encourage and how they structure the social setting to support children’s interactions with mixed-aged peers. Interactions with older peers are associated with more complex cognitive play behaviours, whereas the opposite for interactions with younger children is a common finding in the literature. However, opportunities for interactions with younger children can facilitate older children’s

perspective-taking skills and the development of helping behaviours through relating to their younger peer’s feelings, wants, and abilities (Derscheid, 1997) 161.

### 7.6. The Physical Setting is Organised in Ways that Support Learning and Maximises Outcomes

<table>
<thead>
<tr>
<th>Research-based Features</th>
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<tbody>
<tr>
<td>Pedagogy is concerned with ensuring that the organisation of space, activities, and density is optimal for children.</td>
</tr>
<tr>
<td>The organisation and co-location of play activity areas provides potential for shaping and enhancing children’s thinking and learning.</td>
</tr>
<tr>
<td>Teachers recognise opportunities for scaffolding children’s learning and promoting thinking in the playground and when children are using physical play equipment.</td>
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<tr>
<td>Children’s access to some materials is regulated by the teacher to facilitate children’s use of language to request what they require.</td>
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The evidential base for this characteristic of quality teaching linked to outcomes is thin because most of the research focuses on describing children’s experiences and learning processes. There is a paucity of current research that makes clear links to child outcomes. However the research that exists indicates that the physical setting influences children’s learning outcomes.

**Arrangement of the Physical Setting**

Evidence on the relation between the physical setting and child behaviour and interactions has long suggested that the physical setting is a critical factor in shaping children’s experiences and interactions 162. In teaching practice and policy the evidence does not always appear to be well understood. As a leading researcher of this topic stated over twenty years ago:

> [Early childhood centre] surroundings are in many ways an artificial environment provided by adults who are often unclear about the more subtle purposes of the setting as an alternative to a home. These adults tend (very sensibly) to make decisions that will facilitate group life in a particular setting. The basis for decision-making can alter a child’s experience in ways that are not easily grasped. The way in which a particular activity is arranged often determines the social structure and defines a number of relations concerning power and autonomy. For example, whether lunch is served at long tables in one room or at smaller tables in partitioned areas will determine much of the interaction that occurs. Or if … [the] setting is used for other purposes and there is no provision for storage, it is predictable that children will not do long-term projects that require equipment and a place to leave things from one day to the next. It is also highly probable that the activities provided are likely to be large-muscle physical activities or short-term interest catchers, such as watching television (Prescott, 1981, pp. 154 – 155) 163.

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Burgess and Fordyce’s (1989) research on the effects of the early childhood centre environment on toddlers’ nonverbal social behaviour indicates that more rather than less space is better for toddlers. More confining room space resulted in more immature patterns of behaviour, whereas large play areas facilitated more social groupings and reduced the amount of direct interference from other toddlers. Larger play spaces enabled toddlers to have some control of social input and to cut-off from others thereby reducing “cognitive overload”. Large play spaces afforded toddlers greater opportunity to concentrate in one-to-one interactions with another child and with a teacher.

Barney (1976) provided a comprehensive examination of the ways in which a simple re-arrangement of an activity area may significantly change the quality of children’s play in that area. He noted that often teachers may not know that a particular activity is not working well until they have evaluated what is happening for children.

Case 1: In one kindergarten, observation revealed a high level of movement through the book corner, with individual children seemingly spending only a short time looking at books. The observers, in this case a team of mothers, had quickly detected the reason for this. The book table lay on the direct route from the outside area to the toilets, and ‘readers’ found the constant and often frantic traffic through the area so distracting that they rarely stayed for long.

A new book corner was established and three weeks later, after any novelty had worn off, further observations were made. Movement through the area was found to have dropped from an average of 56 movements per session to 26 movements per session. The number of children using the books had risen, on average, from 9 to 22 per period of observation, and individual children were staying over half as long again in the area (pp. 1 – 2).

The physical rearrangement of activity areas is one strategy to increase children’s involvement and engagement in activities. Another strategy which has been documented to be particularly useful for changing the gendered nature of activities is to confound the activities within specific play areas. Junior school teachers Martin and Malham (cited in Alton-Lee and Densem, 1992) changed the play environment so that it was no longer constructed along traditional gender-activity type lines. Instead of for example putting traditional male props in the family corner area, they confounded the traditionally feminine and masculine activities, so that the children, could for example build tables for tea parties or play dress-ups in rockets.

Children’s Physical Activity as a Vehicle for Thought

Opportunities for teachers to scaffold children’s play and promote their thinking are possible in the outdoor playground and when children are engaged in physical skill activities. Cullen (1993) examined five year old children’s use and perceptions of outdoor play areas in Western Australian early childhood centres. The teachers’ role was found to be primarily supervisory and this appeared to be insufficient for achieving objectives for children’s physical skills and maximising children’s effective use of the

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outdoor equipment. This study highlights that the importance of outdoor play for children’s learning can be easily overlooked in early childhood programmes.

 Teachers were rarely observed interacting with children in ways which would extend their skills. This was particularly evident in sandpit play where the type of play observed, often for considerable periods of time, functioned at a low level in terms of physical, creative, social or cognitive dimensions, for both boys and girls. The length of time spent by some boys in low-level physical play in the sandpit is of particular concern. Appropriate forms of guidance from teachers, in the form of comments, questions, additional resources, or participation could have encouraged children to extend the complexity of their play (p. 55).

In a case study of children’s play at a childcare centre, Stephenson (1998) reports that teachers felt more comfortable about joining in children’s play outdoors than indoors, however, children appeared to be less likely to have sustained interactions with their teachers outdoors because the teachers tended to move in and out of their play more often.

Using the example of teacher talk with children on a climbing frame Williams (1994) demonstrates that it is possible for teachers to enhance children’s understanding of what they are doing, to express their ideas, and to develop their vocabulary. The examples of dialogue provided by Williams illustrate a context of rich interaction between children and their teacher as they involved themselves in problem-solving and negotiating shared meanings and understandings. The study also demonstrates how outcomes for physical skill development are interrelated with cognitive and language outcomes.

**Children’s Access to Materials**

Tennant, McNaughton and Glynn (1988) report that simply adding toys to play sessions does not stimulate language interactions. But when teachers engage children in talk when providing toys children use language more frequently. Doley, Glynn and Wheldall (1989) report on a study that showed when a teacher controls access to certain materials children who want them are prepared to ask and this is a powerful context for language learning. The teacher’s skill as a facilitator of children’s learning is emphasised when children choose when and how they will interact and the teacher manages the physical environment.

### 7.7. Teaching is Responsive to Children’s Physical and Emotional Well-being

**Research-based Features**

- Being responsive to children’s needs for good health, includes prevention of the spread of communicable diseases, and wide ranging health promotion strategies that involve families.

- Effective teachers recognise and attempt to reduce through planning and intervention, distracting and potentially harmful noise, deficiencies in children’s nutritional intake, and the likelihood of children having physical accidents.

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Effective teachers create an emotionally positive climate, characterized by warm and reciprocal relationships with children and parents and families. They recognise the significance of children's relationships with their parents for adjustment to the centre, and support parents in helping their child to make this adjustment.

Health, safety, and emotional security are precursors to children's exploration and learning. Teaching must be responsive to these precursors to maximise children's outcomes, and this is especially important in early childhood education settings when parents and significant others such as whanau members are not available to provide a nurturing link between the child, the programme, and the teacher.

Health Promotion
Bedford (2001) investigated the perceptions of early childhood centre teachers, including playcentre parents, in relation to communicable diseases that are not vaccine preventable, such as respiratory infections, gastrointestinal infections and skin conditions. The most consistent “general” health issue identified was attendance by sick children at the centre. Communicable disease issues were of significant concern to teachers. Across all centre types, teachers were most concerned about glue ear, conjunctivitis, head lice and impetigo. Differences were also noted in the concerns of teachers at different types of centres, indicating that centre diversity needs to be recognised by health professionals who are supporting and giving advice to teachers.

Hayden and Macdonald's (2000) extensive review of the literature about health in early childhood education settings revealed that the main focus is on ways to minimise the spread of infectious diseases. In contrast, their research of health-related practices in New South Wales early childhood centres showed that health promoting activities were common in early childhood centres. Health promotion activities included:

- Involvement of children in caring for the physical environment of the centre.
- Ensuring that children participate in decision-making, guide their own development, are challenged and stimulated, have access to creative, physical, social, and cognitively challenging activities.
- Ensuring that all children and families have equal chance to participate in all centre activities.
- Allowing for identification and support for special needs children.
- Contributing to an environment where bullying and other forms of aggression are disallowed.
- Including role modelling by staff on eating habits and conflict resolution.
- Using routines (meals/nappy changes) and transition times as times for positive interaction.
- Involving families in decision-making.
- Communicating with families in several/diverse ways.
- Reflecting a commitment to antibias and multicultural programming.

Hayden and McDonald conclude that the role of teachers and early childhood centres in health promotion, rather than only disease prevention, should be given greater recognition.

Noise
Early childhood centres can be particularly noisy places especially in kindergartens, where there may be 45 children plus adults in a single open room space at a given time. The physical setting needs to be carefully arranged to minimise the impact of noise on children’s health and behaviour. Barney (1976) identified several factors that would help to reduce noise levels such as the shape of the centre building, the use of and the height of partitions, the type of wood, paint and varnish used for floors.

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and walls, the amount of carpet, padded chairs, cushions and curtains. More recent research by McLaren (2002)\(^{175}\) reported that noise levels in early childhood centres can be at a “toxic” level. He expressed concern that in some cases the levels monitored for teachers were so high that teachers (and children) risked suffering irreversible hearing damage. The longer time spent by teachers and children in full-day early childhood centres further increased the potential risk of hearing damage. Children with an autistic spectrum disorder, children with attention deficit syndromes, and those with hearing loss and even mild glue ear can find speech and communication difficult in settings with a high noise level. But even for children with no identified special learning needs, the high noise levels identified in McLaren’s research suggest that children’s learning outcomes are likely to be affected.

**Nutrition**

The evidence suggests that young children’s nutrient intake is related to task performance. Worobey and Worobey (1999)\(^{176}\) report on two studies about providing breakfasts that met nutritional guidelines to two groups of children in an early childhood centre. Children in both studies were not at risk of malnutrition, they ate breakfast at home nearly every day, and they came from white middle-class two parent families. The first study showed the breakfasts provided in the early childhood centre were of nutritional benefit. Calories from complex carbohydrates were increased from the home (baseline) to the centre (treatment), while calories from refined sugar decreased under the centre condition. The second study showed that children were more likely to eat a well-balanced breakfast in the centre setting, where peers are present (and also eating the breakfast), more time can be taken, and healthy choices are consistently presented. In both studies, children’s performance on a range of tasks was improved indicating that nutritional breakfasts facilitate cognitive functioning.

**Safety**

Keeping children safe is a major issue for teachers of young children, given their high levels of physical activity and emerging skill base. Accident prevention is more about recognition of the interests, developmental status and abilities of children than placing restrictions on what children can do. There is very little research on the topic of accident prevention in early childhood education. An analysis of accidents at a university early childhood centre by Elardo, Solomons and Snider (1987)\(^{177}\) revealed that toddlers were more likely than other age groups to experience injury, and most of their injuries were self-induced and relatively minor. At this age children are physically more awkward and unstable, they are learning to perfect their motor skills, and only starting to be able to perceive and anticipate danger.

**The Emotional Climate**

Shonkoff and Phillips (2000)\(^{178}\) conclude from an extensive review of the evidence that nurturing relationships are essential for children’s healthy development. They state that “stability and consistency in these relationships is important as are the adult’s sensitivity, love, availability, and unflagging commitment to the child’s well-being” (p. 265). They further explain that “relationships shape the development of self-awareness, social competence, conscience, emotional growth and emotion regulation, learning and cognitive growth, and a variety of other foundational developmental


accomplishments. Relationships are also important because these attachments buffer young children against the development of serious behaviour problems” (p. 265).

Hyson and Molinaro (2001)\textsuperscript{179} report on a study that investigated whether teachers’ emotional involvement (presence and availability to care) had different effects on children with and without special needs. Eighteen of the 41 three to four year old children from various early childhood programmes had special needs, mostly developmental delays. When teachers were emotionally warm, personal and involved children with and without special needs were more engaged in learning activities of all kinds. When the teacher was detached/not involved, all children showed significantly more non-engaged behaviour. Children with special needs were found to also have the greatest need for emotionally positive teacher involvement.

Pianta, Nimetz, and Bennett’s (1997)\textsuperscript{180} research illuminates the importance of the parent-child relationship to children’s early childhood centre and school (United States kindergarten) adjustment. They suggest that centre teachers need to be aware of the ways that children seek emotional contact and communicate about their relationship needs, and that children’s cues for emotional contact will vary depending upon their relationship history. By learning about children’s relationships with their parents, and how they negotiate control and share emotion, centre teachers can gain a more complete understanding of the child, and in turn better assist parents in supporting children’s adjustment to the centre setting.

\textbf{I can’t remember what we are laughing at either!}

\textbf{We love being together and learning}

The evidence points to the importance of good relationships between children’s teachers (parents and centre teachers). New Zealand research shows that warm,


balanced, and reciprocal communication between children's teachers, their early childhood centre teachers and their parents, influences children's adjustment to the early childhood centre setting and the nature of their interactions with peers (Smith & Hubbard, 1988). Positive parent-centre teacher relationships are important for creating effective relationships between centre teachers and children, which in turn further consolidates relationships between children's centre teachers and parents (Marsh, 1995).

8. Summary

This synthesis was prepared as part of an iterative process promoted by the Ministry of Education to improve the evidence base for policy, practice, and research. Seven characteristics of quality early foundations teaching were identified through an extensive, but by no means final, review of the best evidence. The characteristics of quality teaching identified as being most important for maximising children's learning outcomes and reducing disparities amongst diverse children were:

1. Effective pedagogy involves working with children as emergent learners.
2. Pedagogy is informed by contextual knowledge of children's learning.
3. Effective teachers use content knowledge confidently to support and extend children's learning in interactive and play-based situations.
4. Pedagogy scaffolds, co-constructs, promotes metacognitive strategies and also facilitates children's learning in the context of adult/older child activities.
5. The social setting is organised in ways that support learning and maximises learning outcomes.
6. The physical setting is organised in ways that support learning and maximises learning outcomes.
7. Teaching is responsive to children's physical and emotional wellbeing.

Children’s teachers in the early childhood years include those who are working in early childhood education programmes/centres, their parents/caregivers and whanau members who may share responsibility for children. The definition of learning outcomes adopted in this synthesis was necessarily broad, reflecting the nature of children's learning and development in the early years, and the national early childhood education curriculum Te Whariki. The characteristics of quality teaching were generated from a wide review of the literature and are supported by theory. The search focused on finding consistent evidence of what has a positive impact on children's outcomes.

This synthesis complements and should be read alongside the synthesis of best evidence on quality teaching in schooling and other early childhood education syntheses. This "Quality Teaching: Early Foundations" synthesis is intended to encourage dialogue amongst and between policy makers, teachers, and researchers on what works for children and how best to optimise outcomes. Feedback from these interest groups will be important for informing subsequent iterations of the synthesis.

As more evidence becomes available further updating of the synthesis will be vital to ensure it remains current.

A best evidence approach is new to the early childhood education sector. It provides a different way of viewing and assessing best practice based on evidence of what works for improving outcomes for diverse children. It indicates the need to consider more closely the value that early childhood education adds to children’s outcomes, especially in terms of what the teacher can do to make a difference. The synthesis has pointed to areas where the chain of evidence is thin, and this may assist researchers (including post-graduate students) in deciding on future research topics.

References


