Strategic Research Initiative
Literature Review

Early Childhood Education
Report to the Ministry of Education

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EARLY CHILDHOOD EDUCATION

Literature Review Report to the Ministry of Education

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Preface

Over the last four years, the Ministry of Education has been directing significant efforts into refocusing its work and effectiveness. This has involved working towards a more strategic approach to policy planning and development, including aligning policy development and research more closely. One aspect of this work has been developing a set of strategic research priorities. The Ministry recognised that it needed a stronger information base and initiated the Strategic Research Initiative project. This literature review is one of suite of “state-of-the-art” literature reviews that the Ministry commissioned in 1999 as a first step in this project.

The literature reviews offer an overview of the most current thinking and developments in their area and will feed into the Ministry’s knowledge, and the nature of research that might address these gaps. The literature reviews themselves do not reflect the views of the Ministry. They are one element in a range of information that the Ministry is using to create a stronger information base for policy development.

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**Executive Summary**

**Participation**
- There is a relatively high proportion of New Zealand children participating in a variety of early childhood settings, but their level of participation is generally for a small number of hours and at a low cost.
- A substantial minority of parents are dissatisfied with their children’s participation in early childhood settings.
- Families with low socioeconomic status and low income backgrounds are less likely to have their children attending an early childhood service.
- Children of European background are more likely to be attending an early childhood centre than children of Māori or Pacific Island background.
- There is some evidence that earlier, longer and more intense participation in early childhood services is likely to be more effective in producing positive outcomes, especially for low income families.

**The Importance of Early Experience**
- Neuroscience evidence of links between early stimulation and synapse formation in the brain is lacking, though developmental psychology evidence supports links between early experience and learning.
- Brain structures develop from the prenatal period through to adolescence and adulthood.
- There are links between early sensory stimulation and the activation of the arousal system – chaotic environments can produce abnormal reactions to later stress, while nurturing sensitive environments allow children to respond more adaptively.
- Young children need to be protected from lack of stimulation, over stimulation or aversive stimulation in the early years.

**Outcome Research**
- Maternal employment and participation in out-of-home early childhood education even during infancy appear not to harm children and can yield benefits to children and their families if it is of adequate quality.
- Attendance at early childhood education programs is associated with cognitive gains and improved performance in school throughout the world.
- Social gains are reported mainly from intervention studies with high-risk children but the experience can help all children develop social competencies.
- Having some early childhood program experience appears to matter more to children than exposure to any particular curriculum or program model.
The early childhood program experience appears to be a stronger force in lives of low-income children than middle-class children.

Early childhood program attendance can narrow the gaps in achievement that separate children from different SES backgrounds, but not entirely remove the gaps.

**General Quality Effects**

- The quality of early childhood education, broadly defined, has an effect on children’s emotional, social, physical and cognitive development
- The positive impact of high quality care is strongest for children who would otherwise experience an unstimulating and unresponsive environment at home
- The quality of children’s early childhood education is not independent of family background. Families with low risk backgrounds tend to use higher quality care and families with high risk backgrounds tend to use lower quality care.
- Recent US research suggests that the quality of family child care is a stronger predictor of developmental outcomes than the quality of non maternal child care, but that a combination of low quality care both within and outside the family produces the most negative outcomes

**Structural Quality**

- Staff-child ratios, staff training and group size have been shown in international research and in New Zealand to be associated with high quality care and more favourable child development outcomes
- Staff wages are a very strong predictor of high quality care - at least as powerful as ratios/group size/ training
- High teacher turnover is associated with poorer outcomes and lower quality care
- Structural indicators of quality are a necessary but not sufficient condition for quality

**Process Quality**

- The most important indicator of quality is the social interactions and direct experiences of children in their early childhood education setting - namely process quality
- The quantity of interaction which children have with their teachers and the amount of attention they receive is one important aspect of process quality - children who interact little with teachers are less likely to profit from their experience in early childhood education setting
- The quality of teacher/child relationships is an important indicator of quality - children can have stable secure or insecure attachments with their teachers which are independent from their attachments to their parents. Secure attachments are predictive of later social competence.
• Joint attention episodes, where adult and child are jointly engaged in attention to outside events, actions or objects, are an important indicator of process quality

• The research supports curriculum models like New Zealand’s *Te Whāriki*, where children are encouraged to initiate, participate in meaningful activities, and explore, and teachers scaffold their developing skills. Highly structured and teacher-directed curriculum models have been associated with poorer long-term outcomes, especially in social behaviour

• Positive and harmonious peer interactions are associated with high quality care whereas aggression and non-compliance between peers are associated with poor quality care. Little attention has been directed towards positive peer interactions as an indicator of quality (compared to teacher-child interactions)

• Support and sensitivity towards parents, clear communication and information sharing are likely to lead to trusting relationships between early childhood staff and parents

**Outcomes for Families**

• Children’s participation in various forms of education and care can influence family psychological well-being, family relationships, and family functioning. The availability of child care can encourage women to go to work, but it can also have some negative effects for the well-being of family members such as increased role strain amongst mothers who must juggle work and child care responsibilities.

• Economic policies and child care support programs have to be appropriate for families and children, and they should be flexible for the diverse needs of working and non-working parents who live in a variety of family formations.

• Access, affordability, work schedules and current income level all create different needs for working mothers and their families. As the price of care rises the demand for certain types of care drop. This is more noticeable than any drop in maternal employment due to any price rise.

• Economic disadvantage may result for families of low socio-economic status when subsidies set up for economic and child care assistance are very strict and limited in their rules for eligibility.

• Parental satisfaction with early childhood programs is not always an indicator of quality, and there is a question amongst researchers as to whether parents can readily identify indicators of quality in early childhood care and education.

• The literature indicates that there are now very clear and well-recognized indicators of quality for successful outcomes in approaches to early childhood programs that utilize a parent education component, and that parent education works best when there is a partnership between early childhood program providers and families.
**Child care Policy Research**

- Early childhood and family policies mediate mothers’ work attachment and the supply of labour rather than the demand for labour. Early childhood and family policies and maternal employment demand can also have impact on national fertility.

- There are reasons to believe that within an open market for early childhood education and care parents will under invest in their children. This is because of the externalities that shift the benefits of the education and care away from the families who purchase it to society in general. This points to a potential role for the government to intervene in the ‘market’ in order to maximize the potential returns to society.

- As early childhood policies tend to be drafted to meet a range of societal goals then there can be a tendency for the policy to lose their external and internal coherency. Resourcing for the policies may be inadequate to meet the goals set, and multiple agency interest in early childhood policy may lead to overlapping policies and accompanying contradictions in their direction.

- The expected rationality of the market requires that parents ensure that the best quality of care is demanded and that providers deliver it at a certain price. But this cannot be guaranteed, as there does not seem to be agreement as to the quality of care and education that children are receiving. This leaves open the possibility that a society cannot maximise their children’s potential if child care choices are left to parents alone.
Chapter 1

Background, Context & Method

Definitions and Scope

The review covers early childhood education for children from birth to five years of age\(^1\), in home based or centre based early childhood programs. The term “early childhood education” is conceptualised as incorporating both education and care, which has sometimes been called “educare” (Smith, 1996a). “It is no longer possible to distinguish between care and education” according to Gammage (1999, p. 11), and others have challenged the view that education and care are separable components of early childhood environments.

"Care" suggests custodial physical caregiving, supervision and affectionate nurturing, whereas “education” suggests planned activities designed to enhance children’s learning. Care has sometimes been viewed as inferior to education, but no meaningful distinction can be made between care and education for young children, regardless of the early childhood setting. The literature shows that if the social interactions, relationships and activities which comprise the early childhood education environment provide sensitive nurturance and care, they are likely to at the same time to promote learning and development. Hence spontaneous and reciprocal interactions within the context of caring relationships are essential components of early childhood education. Nevertheless early childhood education involves planning and designing a learning and caring environment for children and their families, which requires a detailed knowledge about children and factors which support their learning and well-being.

The misleading dichotomy between education and care has in many countries been institutionalised into separate administrative arrangements for care and education. Fortunately New Zealand’s reforms of the eighties and nineties brought together the administration of all services for under five year-old children under the umbrella of the Ministry of Education, a move which supports a holistic “educare” philosophy of education. New Zealand was the first country in the world to integrate responsibility for all early childhood services within the education system (Moss, 2000). There are

\(^1\) Since the age of five marks entry to school in New Zealand, the focus in this review is under fives, but we acknowledge that in the international context this age division is unusual. Nevertheless the bulk of the international research literature on early childhood education does focus on the first three or four years of life.
still, however, sharp divisions and distinctions in the funding and administration of
different kinds of early childhood centres (e.g. kindergartens and child care centres) in
New Zealand, and the early childhood education system includes a huge diversity of
programs, diversity being a value which has been encouraged in New Zealand.

It is nevertheless appropriate to conceptualise early childhood education as
incorporating care and education and inclusive of “organised, supervised programs
with social and educational goals for children in the temporary absence of their
parents” (Smith, 1993, p. 49). Hence the term early childhood education incorporates
provision for birth to five year-olds for a range of hours, in a variety of settings
including kindergartens, child care centres, playcentres, te kohanga reo, Pacific Island
language nests, playgroups, Montessori or Steiner-based centres, and home based care
in organised family day care programs.

At the outset of this review, which must of necessity rely on a broader international
body of research, it is important to establish a New Zealand framework and
perspective. Anne Meade, an influential figure in early childhood education, has
identified three important elements that are at the heart of our early childhood
education services:

- Features which are in the interests of the child - that is good quality services
  which meet the rights and needs of the child.

- Features which are in the interests of caregivers - given that most parents
  who have primary responsibility for their children are women, this means
  accessibility to affordable services which allows women to have a real choice
  about paid work, to do voluntary work, to be available for public duties, to
  further their education, to have regular rest and leisure time.

- Features which are in the interests of cultural survival and transmission to
  succeeding generations - that is, opportunities for young children to learn the
  language and other elements in their own culture in an appropriate setting,
  and for this learning to be available to the parents or whanau as well (Meade
  1996, p. 6-7).

Hence issues relating to children, to families and to society need to be addressed in the
current literature review.

**Conceptual Framework and Model**

This literature review has an ecological perspective, which emphasises that
development is affected by contexts, both children's immediate contexts of home,
early childhood centre or neighbourhood, and the contexts beyond them, which in turn
influence how their caregivers and teachers interact with children. Instead of focusing
most of our attention on the child, it is important to look also at the environment or
setting in which the individual develops. Bronfenbrenner's conceptualises the
environment at several levels. The first level is the immediate setting (or
microsystem). Within the microsystem the child participates in activities, is involved
in relationships with others and is expected to fulfil particular roles. For our literature review on early childhood education, there are two main microsystems which must be considered (portrayed in Figure 1) - the early childhood setting and the family. While the focus of our attention is on the early childhood education microsystem, a major message emerging from the existing literature on early childhood education, is that one cannot consider the two microsystems of family and early childhood centre in isolation.

Bronfenbrenner stresses that levels of the environment which do not actually contain the child, have an influence on development. The exosystem means settings which indirectly affect the child. In the case of our model there are two important exosystems for the two microsystems which contain the child. First there is the family exosystem, which could include factors such as the family-friendliness of the mother's or father's workplace, the geographical isolation (or otherwise) of the family, and the extent of supportive networks of family and friends. Family exosystems may set up barriers to encouraging them to enrol their child in a centre - such barriers might include a lack of knowledge of the early childhood services available, lack of income to pay fees, or lack of access to transportation. Second there is the early childhood setting microsystem, which is the central concern for this literature review - it includes all of the factors which make up quality in the child's microsystem. The exosystem involves factors which support quality, such as training and professional development opportunities for staff, resources (such as the availability of materials and advisory support), access to a relevant New Zealand curriculum and local community support.

The macrosystem refers to the overriding consistencies in beliefs, values and accepted practices within a culture or subculture. For early childhood education, the society's values about whether it is acceptable for babies and toddlers to be in early childhood centres, the overall New Zealand attitudes towards supporting diversity of provision, the government policy framework of regulations and funding and incentives for quality, are examples of macrosystem factors.

Bronfenbrenner also emphasises that one setting where the child spends time (e.g. home) has links with other settings (e.g. early childhood centre), and the nature of these links (the mesosystem) has a major influence on the child's development. The transitions that children make between settings impact on the course of their development, according to Bronfenbrenner (1979). For example when a child moves from home to early childhood centre if there is good reciprocal communication and warm relationships between early childhood teachers and parents, the transition will be supportive of development. Also if the early childhood centre has policies which ease the transition of the young child from home to early childhood setting, such as a primary caregiver system where one staff member is a “special friend” for the child and parents are supported and informed over the transition process, this will ensure an easy transition (Dalli, 1999).
Bronfenbrenner (cited by Benn & Garbarino, 1992) added another system called the “chronosystem” to describe environmental influences on individual or family development over time. Chronosystem effects can be events that are associated with individual life transitions like going to school for the first time, or the effects of cumulative sequences of developmental transitions over the life course within the particular historical time in which we are embedded. For example it has been shown (Elder, Modell & Parke, 1993) that the great depression of the nineteen thirties had a lasting effect on children's lives through changing family functioning and roles. The changes in the nature of the family in the nineties (such as a reduction in family size and an increase in age of mother at first birth), and the move towards a marketised economy could be considered aspects of the chronosystem.

On the right of the diagram on page 11 we acknowledge explicitly that the processes that work together in Bronfenbrenner's systems have a range of outcomes at different levels of society. One of the goals of this review is to identify what contribution ECE makes to societal outcomes. We have identified four loosely linked levels where outcomes might occur. They are outcomes in relation to child development, family functioning, social gains and economic returns. The combined outcomes to which ECE contributes is reflected in the overall level of social cohesion. Those outcomes then become the basis for further system processes at the macro, meso, exo and micro levels.

Methodological Issues

This review of research literature on early childhood education faces problems, some of which are common to all early childhood research, and some of which are particular to generalising from research in other countries (mainly the United States) to New Zealand’s unique socioecological context for early childhood education. First, most research on early childhood education has an almost unavoidable selection bias, because in only a small minority of research studies have researchers been able to randomly assign children to different early childhood settings. Hence it is very difficult to attribute causality to a particular type of early childhood education program. Parents who choose and have access to different early childhood programs often have different family backgrounds - hence it is very difficult to disentangle the influence of the family type and processes from the influence of participation in the early childhood program. For example family factors (such as income) influence the age at which children enter child care, the type of care and the quality of the care (NICHD, 1997). Also the range of variation within both child care and family settings, has a major effect on whether home or child care is shown to be the more salient influence (Phillips & Howes, 1987).

A second problem which affects the early childhood research generally is the restricted nature of the outcome measures used, such as IQ and other standardised tests, and the “strange situation” which produces attachment classifications. Rosenthal (1999) questions the adequacy of such measures for societies which place more emphasis on collective outcomes and goals than individual competencies. For example, early childhood goals in Japan highly value group identity and care for others, whereas in China the development of citizenship, discipline and perseverance
are more important. An Israeli study showed that Russian immigrant parents had very
different attitudes towards the early childhood curriculum, the desirability of staff
training, the physical setting and appropriate staff-child ratios, to Israeli values (Roer-
Stier, 1996). Russian parents considered what was an orderly and regular part of the
day’s early childhood program in Israel to be “a mess” which lacked structure, order
and a working plan. They also thought that Israeli programs were too permissive,
allowing children to play too much and lacking in a directive teaching orientation.
They were surprised that children were allowed to eat whenever they felt hungry and
that children were not taught adequate table manners.

Bronfenbrenner (1979) identified many years ago the problem of ecologically
constricted outcome measures and that much was known about children’s behaviour
in strange situations with strange people for the shortest possible period of time, but
that little was known about meaningful behaviour in context over time. The early
childhood literature has been dominated by research in the attachment paradigm
which will be reviewed later, but which has amounted to almost an obsession. This
has prevented a broader examination of outcomes, for example social, emotional,
creative or moral behaviour, or wider effects on family functioning, cultural survival
or social cohesion. The focus on attachment reflects lingering values that the “normal”
context of child-rearing is mother at home with child, and that any variation in this
arrangement will lead to psychological disturbances for the child (Clarke-Stewart,
1989).

The dominance of a quantitative paradigm has encouraged the use of measures which
can easily be turned into numbers and manipulated, at the expense of more
interpretative research. This interpretative approach allows for an understanding from
the bottom up of the ways that participants in the early childhood education enterprise
- children, parents and teachers - have experienced and understood their participation.
Sociologists of childhood have also criticised the dominant developmental discourse
on childhood, which focuses on the individual, ignores children’s own views and aims
for a description of “the universal decontextualised child” (Mayall, 1994, p. 2). The
result is “grand overarching generalisations substitute for empirical studies of children
in their everyday environments” (Oakley, 1994, pp. 22-3). Developmental psychology
has been the dominant perspective in the discourse of quality in early childhood, and
this has been problematic because of its tendency towards generalisation and
decontextualisation. According to Dahlberg:

Child development has offered as certain and objective truth, the individual’s
progress through universal developmental stages, a ‘grand narrative’...Both the
discourses of child development and quality adopt a decontextualised
approach or, at best, attempt to bring ‘context’ in as an explanatory
variable, divorcing the child and the institution from concrete experience,
everyday life, the complexities of culture, the importance of situation
(Dahlberg et al., 1999, p. 100).

A preoccupation with the long-term effects of environments on children’s experience
is also problematic. This is not to suggest that longitudinal studies are not valuable,
but rather that it is important to look at immediate effects too. Such longitudinal
studies tend to view children as the passive recipients of adult socialization who are
seen only as “potential adults” rather than persons with rights to be respected (Mayall, 1994). The current status and well-being of children are ignored in favour of what they will become. For example, if researchers (e.g. Scarr 1997) are only interested in the long-term effects of quality they may ignore and discount immediate aspects of the environment which may cause children unhappiness or suffering. Fortunately several New Zealand researchers (e.g. Carr, 1998b; Dalli, 1999; Ledger, 1998; Farquhar, 1993) have made valuable contributions to qualitative research in early childhood education, so there is some balance presented against the dominant view.

American global measures of quality of early childhood environments - such as the Harms Clifford Early Childhood Environment Rating Scale (ECERS) - have dominated in much of the published early childhood research in Western countries (and beyond). The authors describe the ECERS as “a short and efficient means of looking seriously at the quality of the [early years] environment” (Harms & Clifford, 1980, iv). The scale, and others like it, have been described as crude and lacking in substantive theoretical relevance (Rosenthal, 1999). Dahlberg et al. (1999) have been critical about the assumption that some global standard or absolute value for quality is being measured without explicit recognition of the values incorporated within the scale. Several researchers argue that the adoption of a single framework of quality will lead to uniformity, and a standardised recipe for the quality of childhood (Dahlberg, Moss & Pence, 1999; Farquhar, 1990; Lamb, 1998; Moss & Pence, 1994).

There is also a wider problem of the dominance of a particular “scientific” and monocultural perspective on quality in early childhood education. Rosenthal (1999), provides an alternative cultural perspective on early childhood research, in a comprehensive critique of the ethnocentric approach adopted in much of the existing research. There is a growing awareness internationally of the “embeddedness in sociocultural context of developmental processes and of educational policy”. What has been assumed to be universal in our knowledge about young children is “a reflection of features of the economic, political, social and cultural environment of European and North American white, middle-class cultural communities” (Rosenthal, 1999, p. 478). Childhood and child development are cultural constructs and there is considerable cultural specificity in “developmental stories”.

Most of the research into the effects of child care in the last 20 years has been done in the United States and published in American academic journals (which is reflected in this review) but must be acknowledged as one of its limitations. Lamb urges “caution about the universality, generalizability and interpretability of the research literature” which reflects the situation in the United States (1998). Most of this body of research shows a lack of appreciation of the broader ecology of child care, including cultural diversity and social change (Rosenthal, 1999). It is ironic, according to Rosenthal, that American research is so dominant and influences practice and policy globally, since the U.S. sociopolitical context for early childhood education is so unusual. For example the United States is alone out of 75 industrialised countries without a government sponsored family policy to support subsidised child care or paid maternity leave. Cultures, according to Rosenthal, may share some goals such as the survival, health and overall well-being of their children, but they also differ in other goals. Hence what is interpreted to be a “good” or “bad” outcome is very much dependent on
cultural context. She argues that many of the characteristics of what is presumed to be a universally accepted definition of quality are really practices by which members of the white middle class help children acquire the skills and behaviours which are valued in their culture. We will return to this issue in the section on quality.

Macrosystem influences, including the effect of different social policy contexts, on the quality of early childhood services are still overlooked (Roer-Strier, 1996). Another example of the difficulty in generalising from American research arising out of the specifics of the American context for early childhood education, is seen in research on relating structural and process measures of quality. The variance of specific structural variables (for example ratios) will determine the relationship they have with process variables, yet that variation is specific to the population sampled which may be very different in New Zealand. The regulatory environment for structural determinants of quality in New Zealand is so different from that in the United States that research needs to be replicated here, before implications can be drawn for our own policy and practice.

Concerns about the preoccupation with a narrow view of inputs and outcomes are summed up in the words of Lilian Katz:

Early childhood programs are increasingly in danger of being modelled on the corporate/industrial or factory model so pervasive in elementary and secondary levels of education.... Factories are designed to transform raw material into prespecified products by treating it to a sequence of prespecified standard processes (Katz, 1993, pp. 33-34, cited by Moss, 2000, para 1.5).

**Collecting material for this review**

A range of sources were searched for what might be considered relevant literature. The original proposal for this project restricted searching to as far back as 1993. The main keywords used for searching were early childhood education, child care, kindergarten, preschoolers, infants. The senior author also e-mailed selected internationally known researchers, such as Deborah Phillips, and asked for copies of their most recent reprints, papers or conference presentations.

**The following online databases were searched:**

**ERIC** (Educational Resources Information Centre) provided an overwhelming number of references when broad keywords were used. For example, early childhood education produced a list of 5095 sources, preschool education produced a list of 4263, and daycare produced a list of 1450. The searches were narrowed down by restricting to journals, which are easier to access when time is a constraint compared to other resources, and act as a determinant of quality; and those ERIC had classified as containing reviews of literature. After duplications were accounted for it left a total of 251.
Psychlit was searched using authors that have been identified as key writers in the area. These searches have identified the most recent publications of these authors: Kathy Sylva (4), Edward Melhuish (3), Deborah Phillips (9), Carrollee Howes (3), Betty Caldwell (11), Fritz Goossens (1), Marcy Whitebook (3), Kathleen McCartney (12), Sandra Scarr (38), Alison Clarke-Stewart (9), Lillian Katz (0), James Elicker (5), Susan Kontos (18). There were another 373 articles not listed in ERIC found by using the same keywords.

Expanded Academic ASAP International
This bibliographic and full text database had approximately 1500 items related to child care especially in the areas of societal outcomes and economic issues. Many were short magazine and newspaper articles. Only a few were articles reporting research (50).

BAS
The online Bibliography of Asian Studies (24)

Index New Zealand (INNZ) There were no new items not already identified through other means.

ABI/ Business Periodicals Ondisc
(4) new items in addition to those mainly already identified by the ASAP International.

Medline
(48) new items

Local Sources of Information
The following sources of information were searched (matches in brackets):
The Children’s Issues Centre library (453-236)
Reference lists of recent New Zealand publications:

Overseas Sources
Informal e-mail contacts with colleagues overseas provided useful input into the review. In addition we looked at very recent presentations and publications from key sources.

The 1999 Programme of the Biennial Meeting of the Society for Research in Child Development, held in Albuquerque, New Mexico between April 15-18(20).
The 1999 High/Scope catalogue (6).
The British National Children’s Bureau publication list was reviewed (18).
The computer software programme Endnote was used to manage the review library as it developed. It was useful for identifying duplicate references from the different sources, and for sorting references into the categories which were developed for the Review of Literature. All matches were either interloaned or copied if they were available at the libraries of the University of Otago, the Teachers’ College or the Dunedin Public Library.

**Initial description of material**

All acquisitioned material was then placed into the following categories, which had been developed after consultation with the Ministry of Education.

- Background and Context (41)
- Learning and Developmental Outcomes (185)
- Diversity (83)
- Quality (284)
- Societal and family outcomes/Social cohesion (194)
- General Policy/Economic Issues (210)

Material could be classified into more than one category. Different members of the team were then allocated areas to work on. Each area was developed by using the Endnote database to draw up lists of articles according to the categories above. Each member of the team was then responsible for deciding which items to use in the review. Regular weekly meetings were held between team members to discuss, reflect and report on progress.
Chapter 2

Participation in Early Childhood Education Programs

The issue of children’s participation in early childhood services, for how long and in what kinds of programs, is a central one. Children move between the two microsystems of home and early childhood service, but what is the duration and extent of their participation in the early childhood microsystem, and does this participation differ depending on their family background? Furthermore is there any level of participation in the early childhood education microsystem that is optimally effective?

Extent of Participation

Just over half (56%) of all children currently in New Zealand under the age of 5 years are enrolled in an early childhood education service. The Ministry of Education Statistics (1999) have shown a steady but marked increase in participation of New Zealand children in early childhood services from 1990 to 1998, an increase of 38% in the level of participation over those 8 years. Most of the increases have been due to increases in the enrolments in child care centres (or “education and care centres” as the report calls them). There was a 6.8% increase in child care enrolments from 1997 to 1998 whereas most other enrolments fell or remained steady. (Enrolments in Early Childhood Development funded centres which includes playgroups, however, did rise by almost 5%). Just under half of all enrolments (41%) were in child care centres, 29% were in kindergartens, 10% in playcentres, 7% were in Te Kohanga Reo, and 7% were in Early Childhood Development funded centres (including playgroups, Pacific Island language groups, and unlicensed playcentres), and 5% were in home based family day care networks.

The figures for participation by age show that the number of under 1 year-olds enrolled has remained steady at about 11% since 1994. Enrolment for 1 to 4 year-olds has, however, increased since 1994, the biggest increase being for 3 year-olds 76% of whom participated in 1994 and 89% in 1998. The enrolment of one year-olds increased from 25% in 1994 to 30% in 1998; 2 year-olds from 43% to 51% and 4 year-olds from 92% to 100%. These figures are acknowledged to be influenced by children who are enrolled in more than one type of service.

A recently released report from the Department of Labour and the National Advisory Council on the Employment of Women (1999) also describes participation in early childhood education and care arrangements, but the data collected presents a slightly different picture to that presented by the Ministry of Education Statistics (see Tables 1 and 2). While the Ministry of Education statistics are based on the actual enrolment figures reported, the Department of Labour survey looked at the child care arrangements of a random sample of 3,800 families with children under 14 years of age (data collected in late 1998). The Survey was run in association with the quarterly Household Labour Force Survey from July to September 1998, and used a...
combination of telephone and face to face interviews, focusing on the child care arrangements utilised by the family in the preceding week. The education and care arrangements in the DOL survey included care by relatives and baby-sitters, not just services funded or monitored by the MOE or ECD.

Table 1: Participation rates in ECE by age according to Ministry of Education Statistics and the Department of Labour Survey.

<table>
<thead>
<tr>
<th>Participation Rate Figures by Age</th>
<th>Min Ed Stats</th>
<th>DOL Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total under 5 yrs</td>
<td>56</td>
<td>60</td>
</tr>
<tr>
<td>Under 1 yrs</td>
<td>11</td>
<td>26</td>
</tr>
<tr>
<td>1 yr-olds</td>
<td>49</td>
<td>30</td>
</tr>
<tr>
<td>2 yr-olds</td>
<td>51</td>
<td>58</td>
</tr>
<tr>
<td>3 yr-olds</td>
<td>76</td>
<td>76</td>
</tr>
<tr>
<td>4 yr-olds</td>
<td>100</td>
<td>84</td>
</tr>
</tbody>
</table>

The DOL survey found higher participation rates for under 1 year-olds, similar rates for 2 year-olds, identical rates for 3 year-olds, and lower rates for 4 year-olds, compared to the MOE survey (see Table 1). The higher level of participation in the DOL survey for under 3 year-olds is likely to be explained by the wider definition of education and care services used, which included unsupervised private arrangements. The DOL figures may, however, give a more accurate statistic of the percentage of participation in early childhood education at the 4 year-old level, because the MOE figures at that level are more likely to be inflated by double enrolments.

The DOL survey showed that 60% of all children under 5 years were in an early childhood education or care arrangement (or more than one) - a figure which is only slightly larger than the Ministry of Education statistics for enrolments. Ethnicity was related to participation in early childhood services, with 66% of European, 53% of Māori, 48% of Pacific Island and 42% of children in other ethnic groups having their child in early childhood arrangements. The survey also showed that participation in early childhood services was related to income, with 74% of children from higher income families, 61% of children from middle income families and 52% of children from lower income families participating in early childhood services. Just under half (46%) of the preschool children participating in an early childhood were doing so for less than 10 hours a week, while 29% attended for between 11 and 20 hours a week, 19% attended for between 21 and 40 hours a week, while 6% used more than 40 hours a week. Most children are therefore in care for quite small amounts of time, and they are also in very low cost care, since the DOL study showed that most parents paid $10 or less per week.

About 70% of under 5 year-olds attend either a child care centre or a kindergarten. The DOL survey, however, gave slightly different results from MOE Statistics for the number of under 5 year-old children participating in different types of service. They found that attendance at kindergarten was higher than at child care centres, followed by playcentre, ECD funded centres (mainly playgroups and Pacific Island centres) and
Finally Te Kohanga Reo. The figures have been calculated as a percentage of those in centre based care (see Table 2). The most notable discrepancy between the DOL and MOE figures is that a larger number of children in the DOL survey sample attended kindergarten than child care centres, while the MOE figures show the reverse. The DOL survey also showed a larger number of children in playcentres and a smaller number in te kohanga reo, compared to the MOE figures.

Table 2: Participation Rates in ECE by service according to Ministry of Education Statistics and the Department of Labour Survey.

<table>
<thead>
<tr>
<th>Participation Rate by Service</th>
<th>Min Ed Stats</th>
<th>DOL Survey²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child care</td>
<td>41</td>
<td>34</td>
</tr>
<tr>
<td>Kindergarten</td>
<td>29</td>
<td>36</td>
</tr>
<tr>
<td>Playcentre</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Te Kohanga Reo</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>ECD funded</td>
<td>7</td>
<td>11</td>
</tr>
</tbody>
</table>

The DOL survey showed that 34% of 3 year-olds and 55% of 4 year-olds attended kindergarten, but 15% of 1 year-olds and 25% of 2 year-olds attended child care. For under 1 year olds the most common non parental care arrangement was with unpaid relatives. Only 7% of under 1 year-olds attended child care centres.

An Early Childhood Development study of participation trends (Newell, 1999) suggest that, while there was a modest increase in participation of Pacific Island and Māori children in early childhood education between 1992 and 1994, participation rates levelled off after 1994. In contrast participation of other ethnic groups steadily rose between 1992 and 1996, but it is suggested that the apparent increase in participation by other groups is likely to be associated with enrolment in more than one service.

**Barriers to Participation**

Just over a third of the families participating in the DOL survey who wanted changes to their children’s early care and education, were dissatisfied with the hours of care they were currently able to access. Most of these wanted an increase in hours, and the main reason that they could not have their child in longer hours of care were the lack of flexible hours provided by the centre (e.g. in half day programs), the long waiting lists, or their inability to pay for more hours. Hence there is a sizeable minority of children’s existing arrangements which are not meeting parents’ preferences - Māori parents, solo parents, and parents with more than one early childhood arrangement make up most of this dissatisfied group. Sixty per cent of children in early childhood services are in one early childhood setting, but 40% are in two or more different arrangements. Parents do not seem to be happy with having to meet their own need to work and their children’s needs for care using several different arrangements. While

² These figures have been calculated from Table 1a, p. 108 in the Department of Labour Survey.
there is some research which suggests that children may be adversely affected by the discontinuity of being moved between programs (Butterworth, 1996), other research shows no ill effects of participating in several programs (Wylie & Thompson, 1998).

The main barriers to Māori participation in early childhood education were identified in a survey of families in Wanganui, Waitakere City and Lower Hutt (Te Puni Kokiri, 1995). Cost, lack of transport, and lack of information were perceived to be limiting factors by parents. The paper suggested that the most effective solutions to lack of Māori participation would involve Māori initiatives, resources and control.

Lythe’s (1997) telephone survey of 767 Wellington families with four year-old children, showed even higher rates of dual enrolments, with a third of the children in the survey attending only one early childhood service (and the remainder attending 2 or more). Educated parents from high income groups were more likely than others to have their child in at least 2 early childhood services. Income, education, and occupation were also related to choice of early childhood service. Parents who were employed full-time were over 3 times as likely to use child care as parents who were not employed or employed part-time. Better educated parents and high income parents were also likely to choose child care. The survey showed that the mean length of attendance was longest for playcentre (35 months), followed by nga kohanga reo (32 months), child care (27 months), private preschool (21 months) and kindergarten (18 months). The mean and modal number of hours spent in an early childhood centre per week was 15 hours, higher than the more recent DOL data which surveys a more representative sample. Nevertheless the Lythe study does suggest that low income children are likely to have less participation in early childhood services than middle class children. The study highlights concerns that parents on lower incomes, especially solo parents and Māori and Pacific Island parents, had a sense of educational deprivation and that their children would not get the chance to get as much education as they would like them to have had.

Geographical location is also an issue for participation, with rural areas generally having lower levels of participation than urban areas. The recent ECD study of trends (Newell, 1999) showed that the highest participation rate in the country in 1996 was Hawke’s Bay (which has 23% rural population) and the lowest rate was in the West Coast (70% rural population). Generally areas with a high per cent of rural populations such as Northland, the Tasman region, Southland, the West Coast and Waikato were more likely to be in the lower half of the rankings for level of participation. The exception was Auckland which was 12th (out of 17 regions) in level of participation, but where the rural population was only 6%. Despite the fact that the Auckland region has the highest concentration of Pacific Islands population and a large Māori community, it has the lowest Māori participation rate, and one of the lowest Pacific Island participation rates in the country.

**Intensity of Participation**

The research shows a relationship between cost and quality (Helburn, 1995; Smith et al, 1995) yet many New Zealand early childhood programs seem to be being run at minimal costs (to both parents and the state) and most children are participating for a
small number of hours. Lythe (1997) found that the costs paid for early childhood services reflected family income and education, with parents in the highest income bracket being most likely to be paying fees above $150 a week and parents on low incomes most likely to be paying $5 or less a week. Although some of the costs are absorbed by the state through subsidies and per child funding, the low cost and low hours characteristic of early childhood participation in New Zealand, raises the question of whether New Zealand children are participating for long enough to have any effect on their development. The early childhood research literature is somewhat difficult to generalise from about the extent of care which can influence child outcomes, but a few studies address this issue.

Most of the American research refers to participation of 20 to 35 hours per week (Lamb, 1998) but in New Zealand the hours of participation appear to be much lower (DOL, 1998). For middle-class American children (Clarke-Stewart, Gruber & Fitzgerald, 1994) there is evidence that cognitive development is curvilinearly related to the number of hours of participation. Those in centres for 10 to 30 hours a week scored better than those receiving more or less care. A study of the impact of participation in ordinary child care (not necessarily high quality or specially designed intervention) for children in impoverished families showed that initiation of child care before the first birthday was associated with higher reading recognition scores compared to those who enrolled later (Caughy, Di Pietro & Stobino, 1994). Children whose home environments were unstimulating gained the most, while those in more stimulating and responsive homes did less well. These findings concur with several of Ramey’s studies cited in Lamb’s (1998) review, showing that the impact of participation in early intervention programs, was substantially more powerful when the families participated more intensively and took advantage of the various services offered to them through different aspects of an intervention program (for example early childhood centre care, home visits and group meetings). Ramey & Ramey (1992) identify the following principles for the most effective intervention to assist families on low incomes:-

- provide programmes which begin earlier and last longer
- provide more intensive programmes and encourage active participation
- deliver services directly to children (rather than via parents)
- provide comprehensive rather than narrowly focused programs

One study compared the effects of participating for 1 or 2 years in a federally funded early childhood program for low income families (Reynolds, 1995). The children who participated for 2 years in the program started and ended kindergarten more academically competent than those who had participated for 1 year, but by the time the children had reached elementary school there was no meaningful difference in achievement or social behaviour between those who had participated for 1 or 2 years. The mean effect size of 1 and 2 years of participation across all outcomes was .34 standard deviations. Reynolds (1995) suggested that where the level of funding is a major consideration, it might be better to enrol larger numbers of children in intervention programs for 1 year.
The importance of length of time in early childhood education, is also highlighted by the New Zealand Competent Child study. Wylie, Thomson & Lythe (1999) found that length of time in early childhood education had a positive effect on later competencies. Children who started early childhood education before 2 years of age generally scored 6-7 percentage points more than those who started later, in 5 competency areas - motor skills, communication, logical problem-solving, literacy and curiosity.

Nevertheless, Frede (1998) cautions that although it would be expected that the most effective programs (especially for children from low income families) would be expected to be those with the most intense and long-lasting interventions, only limited conclusions can be arrived at regarding the benefits of program intensity. The issue of intensity is more complex than just the matter of hours of service, according to Frede. The effective programs he reviewed included half day programs during the school year, and programs which started in infancy and continued over the early grades. Intensity is also related to size of class, inclusion of home visiting and other services (e.g. nutritional advice), teacher turnover and other program variations. Barnett (1998a) believes that future research needs to address the issue of the optimal entry age, duration and intensity of the learning environment. He says, however, that birth through age five interventions may result in larger and more persistent effects and that:

One may reasonably conclude that high quality, full-day, year-round ECE beginning in infancy and continuing to school entry is likely to produce the greatest cognitive and academic gains for disadvantaged children (Barnett, 1998a, p. 40).

Messages from Research

• There is a relatively high proportion of New Zealand children participating in a variety of early childhood settings, but their level of participation is generally for a small number of hours and at a low cost

• A substantial minority of parents are dissatisfied with their children’s participation in early childhood settings

• Families with low socioeconomic status and low income backgrounds are less likely to have their children attending an early childhood service

• Children of European background are more likely to be attending an early childhood centre than children of Māori or Pacific Island background

• There is some evidence that earlier, longer and more intense participation in early childhood services is likely to be more effective in producing positive outcomes, especially for low income families

Future Research

While the DOL study provides some indication of the usage and barriers to usage of early childhood education and care (both formal and informal) of a large sample of
New Zealand families, further more in-depth study of the reasons for parents’ lack of participation is necessary. There is not enough information about why families do or do not enrol their children in early childhood services. Whether low levels of Māori and Pacific Island participation are to be explained by unhappiness with the cultural practices in early childhood services, or by factors associated with low income (such as lack of transport) are questions which should be further examined. It would also be helpful to design interventions such as funding incentives for families (especially low income families) to enrol their child in an early childhood services, and evaluate such interventions systematically. A major issue which has not been satisfactorily resolved, is what is the optimal intensity of participation (in terms of hours and variety of services offered) for children of different ages and from varying types of families, and is there any deleterious effect of participation in several programmes.
Chapter 3

How Important is Early Experience?

All learning is social and embedded in consistent, frequent and intense stimulation from the adults in the child’s social world who have a close relationship with the child. Children are both vulnerable to stress and amazingly receptive to positive learning opportunities during the early years, but how children’s learning is related to developments in the brain is a controversial issue.

Neuroscience and implications for early childhood education

The last 10 to 15 years have seen an explosion of interest in the neuroscience of the brain and its relationship to development in the early years, learning, behaviour and health (Bruer, 1999, Fancourt, 1998; Gammage, 1999; Nelson & Bloom, 1997; McCain & Mustard, 1999; Perry, Bollard, Blakley, Baker & Vigilante., 1995; Shore, 1997). Some authors have interpreted this research to suggest that early experience before three has a profound effect on the neural pathways of the brain. They suggest that there are “windows of opportunity” early in life when the brain is particularly receptive to stimulation, the nature of which has a profound influence on the wiring and sculpting of brain architecture. For example, according to McCain and Mustard (1999):

> The quality of sensory stimulation in early life helps shape the brain’s endocrine and immune pathways. The relationship between the brain and the endocrine/immune system, set in early life, seems to be a pathway for how competence and coping skills influence learning, behaviour and disease risks in later life (p. 32).

Bruer (1998), however, argues that there is little new research to support such claims, that they are based on old neurobiological findings, and that such research has been oversimplified and misinterpreted. He argues that popular understanding of how brain science relates to early childhood can be inaccurate and misleading. Nelson & Bloom (1997, p. 983) also caution against “the simplistic view that the brain becomes unbendable and increasingly difficult to modify beyond the first years of life”. These researchers suggest that there is now strong evidence that some structures in the brain can be influenced by experience throughout the human life span. The main arguments presented by authors such as Shore (1997) and McCain & Mustard (1999) are as follows.

Rapid postnatal synapse formation and critical periods: Very rapid brain development occurs before birth and at a foetal age of around 4 - 5 months, neurons migrate to their correct location and begin forming connections, or synapses. During the first three years of life the vast majority of synapses are produced, and synapse production outpaces synapse elimination. Synapses allow the brain to recognise the signals carried by neural pathways and carry nerve signals to sensory organs. Neurons (or neural pathways) which are not
used are pruned away, hence the wiring of the brain is formed by early stimulation. Repeated activation of a pathway increases the strength of the signal and protects it from elimination. This early organisation of the brain is difficult to modify later in life. High quality sensory stimulation during the first few years of life, through nurturing, singing, talking and reading to babies should exploit this critical learning period. There may be a life-long impact of early experiences and permanent damage if critical periods are missed. A critical period exists during which the synapses of the dendrites are most ready for appropriate stimulation, be it through words, music, love, touch, or caring. If these synapses are not stimulated early, they may never fully develop. (Wynder 1998, p. 166).

The production of cortisol: How the brain reacts to stressful stimuli is influenced by the quality of early sensory stimulation. When the brain receives stimuli which are interpreted as stressful, an arousal mechanism is activated which stimulates the sympathetic nervous system in the brain and causes the release of chemicals which heighten sensitivity to stimulation and improve memory (McCain & Mustard, 1999). Sustained or chronic stress (as in physical or emotional trauma or exposure to substances such as cocaine or alcohol) has the opposite effect, reduces the brain’s capacity to respond to stimuli, and has a negative effect on memory. The activation of this arousal system produces cortisol, high levels of which cause the death of brain cells and a reduction in connections between cells in certain areas of the brain. An excess of cortisol in the brain is linked to impaired cognitive ability and difficulty in responding appropriately or productively in stressful situations (Newberger, 1997). Gaining control over the stress response occurs during a critical early period. Hence early brain development is negatively affected by the absence of stimulation or chaotic, traumatic stimulation.

Studies measuring cortisol in children’s saliva, show that those who received warm and responsive care are able to turn off this stress sensitive response to such situations as vaccinations, the presence of strangers or separation from parents, more quickly and efficiently. Children who receive sensitive care in the first year of their life are less likely to respond to minor stresses by producing cortisol, and their cortisol levels quickly return to normal after they have experienced stress (Shore, 1997). One implication of this research is that children who are emotionally neglected, abandoned early in life, or abused, are more likely to have difficulty in learning and may have more trouble experiencing empathy, attachment, or emotional expression in general. McCain & Mustard (1999, p. 37) in support of this view, cite a Canadian study of children adopted from Romanian orphanages, showing that the longer that children had been in an orphanage the more serious were their problems. Another implication of this research is that early childhood education can provide protection for at-risk children. Gammage (1999) explains that providing strong attachments for children at-risk is one way of buffering the negative effects of stress systems in the brain since research has shown that strong emotional bonds to caregivers consistently lowered levels of cortisol in babies’ brains.
It is the interpretation of the basic research about synapse formation and development that John Bruer (1999) has been most critical of. He disputes the unwarranted generalisations which are made from the basic research. The main problems with the popular view, he says, are with the incorrect assumptions made, including that most brain development occurs before the age of 3 years, that more synapses mean better intellectual functioning, and that there is a causal link between early stimulation and synapse formation. Major claims are based on a very small number of studies, few of which actually involve human brains. Only one study (of 29 epileptic children, Chugani et al, 1987 cited by Bruer, 1999) actually examined children’s live brain function using PET scans. A much cited major study by Huttenlocher’s research group (using autopsies) relies on the analysis of only 4 adolescent brains (cited by Bruer, 1999, p. 268). These studies examine changes in synaptic density according to age and time.

Bruer shows that brain development is not completed by the age of 3, and that the brain changes and develops well into adolescence and adulthood. Babies have approximately the same synaptic densities as adults do, but rapid synapse formation following birth leads to a plateau period when synaptic densities are higher than adult densities. The third phase begins at puberty when synaptic densities reduce to adult levels.

It is not clear what the rationale is for thinking that the PET results give reasons for providing visual and auditory stimuli at age 2 months and self-regulatory training at 8 months. Although the frontal context might come online at 8 months, it will not mature, at the synaptic level, until puberty, no matter what kind of stimulation a parent might provide (Bruer, 1999, p. 270, emphasis added).

Bruer points out that it is impossible to say what the implications of the observed changes in synaptic density are for child development, or even if they have any meaning at all in relation to environmental and parental stimulation. The authors of the study (Chugani et al, cited by Bruer, 1999, p. 270) argued that brain maturation proceeds into the second decade of life and that the years from 3 to 8 or 9 are the most significant developmentally. Bruer, however, says that this interpretation also goes well beyond the data which is presented!

Bruer criticises as naive the assumptions that the more synapses we have the more intelligent we are, and that early environmental stimulation causes synapses to form. He reports on studies which show that people suffering from genetic conditions such as Down’s syndrome do not have abnormally low synaptic densities, and indeed neuroscientists had found that the brains of some intellectually disabled people have abnormally high synaptic densities. The evidence, he says, supports the view that too many synapses are detrimental rather than beneficial for effective mental functioning. Bruer puts much more emphasis on the necessity of losing synaptic connections (rather than forming them), as part of the normal process of brain development continuing through adolescence, and explains that the loss of these connections do not diminish brain power. He cites several animal studies showing that the rate of synapse
formation and synapse density are not affected by the quantity of stimulation, and argues that synapse formation is probably under genetic control.

The accompanying editorial (Barth, 1999) in the issue of *Phi Delta Kappan* where Bruer’s article appears, refers to the wealth of data from developmental and cognitive psychology (if not from neuroscience) to show that the early years are hugely important. According to the editorial, Bruer does not dispute this point and accepts the value of encouraging parents and child care providers to sing to, talk and interact with babies. Bruer’s point is that it is premature to use brain science to support such social and education programmes.

**Implications for Early Intervention:** Critical periods are not simply windows that slam shut. Critical periods in humans do not in general map neatly onto the period of rapid synapse formation, i.e. onto the first three years of life. (Bruer, 1998; Bruer, 1999). Brain development continues from the prenatal period through to adolescence. Although Bruer challenges the view that neuroscience evidence supports a causal link between environmental stimulation and synapse formation, other developmental studies support such a link (see following sections of this report). It is also known that normal human development can be threatened by the presence of harmful substances or events during prenatal and early postnatal development of the nervous system, at critical periods. Likewise, nutritional deficiencies can impair mental as well as physical development in childhood (McCain & Mustard, 1999; Peterson, 1994). Moreover, research supports the importance of identifying and treating sensory problems as early as possible (Bruer, 1998). From a practical point of view Shore (1997) argues that missing early opportunities to promote healthy development leads to more difficult and expensive remediation which may be less effective. Newberger (1997) brings up an important point, however, that parents and/or caregivers who push children too fast or too hard can do as much damage as those who do not challenge children at all. This finding has implications for the curriculum in particular and early childhood experiences in general.

There is an interplay between nature (genes) and nurture (nutrition, surroundings, care, stimulation, and teaching); the importance of strong and secure attachments; the efficacy of prevention; and the wisdom of high-quality and well-designed early intervention (Shore, 1997). The first principle for action is “do not harm”, hence efforts to provide good quality home and child care environments should be fostered. The second, “prevention is best”, argues for the need of protection and early and intense intervention when this is needed. And the third, “promoting healthy development for every child”, stresses the importance of not missing early opportunities for healthy development and learning. While there is controversy over whether neuroscience supports such findings, there is considerable evidence from other research in developmental psychology, such as early intervention and early attachment studies, to support these conclusions.
Messages from Research

- Neuroscience evidence of links between early stimulation and synapse formation in the brain is lacking, though developmental psychology evidence supports links between early experience and learning.
- Brain structures develop from the prenatal period through to adolescence and adulthood.
- There are links between early sensory stimulation and the activation of the arousal system – chaotic environments can produce abnormal reactions to later stress, while nurturing sensitive environments allow children to respond more adaptively.
- Young children need to be protected from lack of stimulation, over stimulation or aversive stimulation in the early years.

Further Research

There needs to be closer co-operation between neuroscientists, physiologists, health researchers and early childhood researchers in order to design research which can effectively examine whether and how high quality early childhood education influences the functioning of the brain, the body’s arousal mechanism and other aspects of physiological functioning. According to Nelson & Bloom (1997, p. 983):

The long- and short-term success or failure of any intervention for intellectual (e.g., Head Start) or psychotherapeutic (e.g. treatment of depression) purposes depends in part on the ability to modify the brain at the cellular, physiologic, and possibly microanatomic levels. Investigating the neural mechanisms that underlie an intervention is useful in its own right, but the methods that permit such investigation could ultimately be used as a “marker” variable to evaluate the intervention itself.
Chapter 4

The Effects of Early Childhood Education

The dominant research questions in early childhood education have been conceptualised in a metaphor of “waves” (Lamb & Sternberg, 1990; Rosenthal, 1994; Scarr & Eisenberg, 1993). Rosenthal points out that the assumptions underlying American child-rearing values and American hopes and concerns are reflected in the nature of these research questions.

The first wave of research emerged out of experimental early childhood programs developed in the United States, which included initiatives in early childhood designed to break the cycle of poverty and disadvantage and to give poor children a good start at school. These intervention programs were directed at improving children's IQ, cognitive development, school achievement and mastery of formal concepts; improving social relationships with adults and peers; and reducing deviance and delinquency, through special teaching in the early years. The intent of such programs was to allow children to experience greater success, improve both child and parental satisfaction with education, and to have a lasting impact on motivation and attitudes towards learning, enabling children to make an easier transition to school and developing a continuing commitment to school (Sylva, 1992).

The second wave of research concerned the provision of child care, or substitute non parental care for infants or young children during the day, and emerged from the controversy about whether the daily separations involved in longer day child care especially during infancy, have a negative effect on bonding with the mother and subsequent social behaviour in school and early childhood education. The emphasis was on the possible negative effects separation from the mother. In this research more attention was given to the effects on social rather than cognitive development. This wave of research evolved into a third wave, which was concerned with quality and its the effects on development, and the possible interactions between quality as experienced in the child’s home environment and in early childhood settings (Barnett, 1998a).

The research on the effect of early childhood education arises out of two main types of research - the first has examined the effects of ordinary early childhood experience on children from all backgrounds, and the second evaluates the effects of interventions specially designed to improve the development of economically disadvantaged children.

It is important to point out at the outset of this section that the issue of whether early childhood education makes a difference (to children’s development in particular and to their life in general) is multi-faceted and complex. Research has looked at aspects of this issue by examining different short and long term effects. However it is worth noting that in addition to the early childhood experience, there are other influential
factors that contribute to the success or otherwise of this experience. Moreover, as Melhuish (1993) suggested in a review entitled *Preschool care and education: lessons from the 20th for the 21st century*, the short answer to the over simple question of whether early childhood education experience affects children’s development, is that it depends on the quality of the experience. We discuss quality in detail in the next section and therefore the aim of this section is to try and give an overview of the findings of different studies that have looked at outcomes.

**Short-term effects**

Experts agree that early childhood education programs can produce short-term gains in disadvantaged children’s performance on standardised tests of intelligence and academic ability. Intervention programs can produce immediate effect sizes for IQ and achievement equivalent to about 8 IQ points. Smaller average effect sizes are reported for immediate effects on socio-emotional outcomes such as self-esteem, academic motivation and social behaviour. Other benefits are low grade retention rates and special education placement later on (Barnett, 1998a, 1998b; McLoyd, 1998). There is, however, a great deal of disagreement about the true nature of these effects, whether they persist, what other effects might be produced, and what is required to produce meaningful long-term effects. The difficulty in interpreting the results of studies dealing with short-term effects is that it is difficult to separate the effects of early childhood education from the effects of family characteristics that influence enrolment decisions.

The Child-Parent Center Program based in Chicago is used to exemplify the short-term effects of early childhood education. This is a centre-based intervention that provides comprehensive educational and family support services to economically disadvantaged children (ages 3-4 years) from early childhood to early elementary school. The study includes two cohorts of children from the Chicago area: 989 children who entered the program in early childhood from twenty child-parent centres and another 550 children from other programs without the Child-Parent Center early childhood experience. Reynolds (1999) reports that program participation appears to enhance children’s early cognitive and language development so that they are more likely to begin school ready to learn and this readiness provides advantages in adjusting to school. The study concludes that program participation provides social as well as cognitive advantages in adjusting to school.

Reynolds (1999) carried out one of the few studies which can give any indication of the causal mechanisms underlying the effectiveness of an early intervention program. The study looked at which of five different possible factors mediated the Child-Parent Center program effects through structural modelling to estimate the pathways of influence. The five factors examined were cognitive advantage (a direct effect on children’s cognitive functioning); family support (enhancing parents capacity to support children’s learning); motivation advantage (changes in self-esteem, self efficacy, task persistence and effort); social adjustment (improved social development such as internalisation of social rules and norms); and school support (schools are of sufficient quality to maintain or enhance achievement). The study concluded that the long-term effects of the program were primarily due to early cognitive and scholastic
advantages, which culminated in better social competence in adolescence. These were shown to be the strongest and most consistent mediator of program effects. Family support and school support also played a significant role. According to Reynolds:

Although the pathways of program effectiveness were diverse, findings largely supported cognitive advantage as the major initiator of long-term effects for most program outcomes… Program participation appears to enhance children’s early cognitive and language development so that they are more likely to begin school ready to learn and this greater readiness provides advantages in adjusting to school (Reynolds, 1999, p. 15).

Another example of an intervention program which looked at short-term outcomes is the Abecedarian project (Ramey & Mills, 1997). This project provided long day care five days a week for children from predominantly black high-risk families, starting before children were three months old. This project indicated that intervention is most effective when it occurs in preschool years. It is claimed the earlier the better rather than after the child starts school (Ramey & Campbell, 1987; 1991). Early childhood treatment positively affected the level of academic outcomes in relation to IQ scores, academic achievement and retention in grade while school age treatment only did not. The early childhood treatment effects were maintained through the second year of school. Ramey and Campbell (1987, p. 138) concluded that “...systematic early education can reduce the incidence of underachievement and delayed intellectual achievement - outcomes that are theoretically and educationally important”.

In general, research has shown that poor students who attend large scale (e.g. Head Start) and small, model early childhood intervention programs have superior academic readiness skills or show greater gains in these skills than their peers (e.g. Currie and Thomas, 1995; Reynolds, 1999). These programs have also been found to lower rates of grade retention and assignment to special education and enhance performance (e.g. Fuerst & Fuerst, 1993; Reynolds, 1994). The same effects have been replicated in experimental studies (Royce, Darlington & Murray, 1983) and in quasi-experimental studies that carefully controlled for pre-existing differences in children’s cognitive functioning and background characteristics such as maternal education and parental presence (Lee, Brooks-Gunn, Schnur & Liaw, 1990).

There is some research which suggests that cognitive and academic gains produced by early childhood education programs are typically diminished and/or completely lost within a relatively short period of time. Lee and Loeb (1995) suggest that there is a reason to believe that this diminution of effects is due to poor-quality schooling subsequent to the intervention. However Barnett (1998a) claims that the belief about fade-out is incorrect. He suggests that the quality of elementary schools is an important concern in relation to children’s cognitive development and educational success of children in poverty. Moreover, McLoyd (1998) suggests that although early childhood education intervention programs are protective, they do not bestow the participants with levels of cognitive and academic competence comparable to those seen among non poor children in the general population.
With regard to the effect of early childhood education on language development, research from Bermuda (McCartney, 1984), Canada (Goelman and Pence, 1987) and the UK (Melhuish, Mooney, Martin and Lloyd, 1999) concludes that this is predicted by the quality of the program rather than by the experience itself. However, the analysis of a nationally representative survey in the United States carried out by Hofferth (1999) examined the experience of 36,000 children in 2,400 families in the first three years of life. It examined the relationship between the experience of child care and preschoolers’ language development. The study concluded that children who had experienced out of home nonparental care had advanced language development.

Burchinal (1999, p. 76) suggests that “the most vigorous debate about child care concerns the potential influence of early nonparental care on later social and emotional development”. Many of the studies which have looked at the socio-emotional development of young children were instigated largely by Bowlby and Ainsworth’s work on attachment and the effects of non-parental care (Barnett, 1998a). Burchinal (1999) explains that attachment theory posits the importance of the primary caregiver (typically the mother) as a predictable, contingent, and responsive care giver to the infant. It was believed that the infant who experienced multiple caregivers may not be able to form as strong an attachment bond with the mother, as the child who experienced a single care giver. Bowlby’s claim was that young children could suffer psychological damage if separated from their mother or mother substitute in the first five years. This had implications for early childhood education as well as nonmaternal infant care. Much of the research carried out between the 1960s through to the 1980s (especially in the US) was concerned with the possible negative effect of non-maternal care on children. In 1982, Belsky, Steinberg and Walker reached the conclusion that there was no firm evidence to link non-parental day care with attachment. However, Belsky (1988) re-examined the evidence and concluded that there was a small but significant effect of non-parental care increasing the risk of insecure attachment. Arguments have been made about Belsky’s view suggesting primarily that children in child care are more independent rather than more insecure and that the ‘strange situation’ does not have the equivalent ecological validity for the groups of children being compared. Moreover, the evidence in favour of Belsky’s conclusion comes primarily from the USA where according to Melhuish (1993) much of the day care is of poor quality. Barnett (1998a) explains that recent developments in attachment theory are more in keeping with ideas about the importance of a range of significant relationships for children under five (parents AND others - professional caregivers, family members as well as friends).

A comprehensive examination of the relationship between child care, attachment and children’s emotional development has been carried out by the NICHD Early Child Care Research Network (1997). This study looked at the consequences of child care decisions on child development. Over 1,300 children and families were recruited at birth in ten different locations in the US. Child care experiences, demographic characteristics and parenting styles were collected prospectively and the infant-mother attachment was assessed when the infant was 15 months old. Comparisons of reactions to the strange situations for infants who did and did not experience child care indicated that that paradigm was valid for both types of children. Analyses indicated that neither the amount nor the quality of child care experience was related
to the security of the infant-mother attachment for children in general. Insecure attachment was more likely among children with less sensitive mothers if they experienced extensive amounts of non-maternal care, poor quality care or multiple care arrangements.

Though Belsky (1994) continues to suggest that care initiated in first and perhaps even second years of life may adversely affect children’s socio-emotional adjustment, other investigations have failed to discern relationships between early-care experience and compliance, aggression, and problem behaviour (Howes, 1988; McCartney & Rosenthal, 1991; Prodromidis, Lamb, Stemberg, Hwang & Broberg, 1995). Furthermore, the NICHD project (1998) reported that their study on the relationship between early child care and self-control, compliance and problem behaviour at ages 24 and 36 months showed differences at these two age groups. At age two, children who spent more time in care were reported by their mothers to be more uncooperative and by their care givers to exhibit more behaviour problems. However, by age three, no significant effects for the amount of the child care experience could be detected. The study concluded that more experiences in groups with other children predicted more co-operation and fewer behavioural problems. In a similar vein, Sommer (1992) contended that the role of day care centres in Nordic countries could be seen as socialising children into acceptable group behaviour. The Nordic project has identified the following social and cognitive competencies as necessary for the modern child: social flexibility, communication, the ability for self-reflection on the relationship between self and others and the ability to integrate experience in the two worlds (home and day-care) into a meaningful whole. Early childhood education can contribute to the development of these skills.

With regard to social skills in general, the authors of a large multi-site study called The Cost, Quality and Child Outcomes in Child Care Centres Study (1995) which was carried out in four American states (California, North Carolina, Colorado and Connecticut) concluded that the quality of the experience was of utmost importance. Children enrolled in high quality centres had superior social skills (even after controlling for the effects of social class, ethnicity and other aspects of family background). Similarly, Howes, Matheson and Hamilton (1994) reported that children with secure relationships with their first teachers were rated as optimally ego-controlled and those who were classified as secure with their teachers at four years of age were more gregarious, ego resilient, popular and socially adept than children who had insecure relationships with their teachers. Therefore, in the short-term the security of the relationship between carer/teacher and child was an important and related factor to children’s social competence with peers.

The belief of the association between nonparental care and behavioural problems was not evident in several studies, both small and large scale. For example, Borge and Melhuish (1995) followed all the children in a rural Norwegian community from their fourth birthday through to grade three. They concluded that behaviour problems were not more common among those children who had received nonmaternal care in their first three years at either age four or eight. In fact, children who had experienced more centre care between the ages of four and seven had significantly fewer behaviour problems at ages seven and ten years, both in the views of mothers and teachers.
In New Zealand, the work of Cathy Wylie and her colleagues set out to describe and analyse variations and changes in children’s cognitive, social, communicative and problem-solving competencies from the time they began school and to see what impact children’s early education experiences among other factors had on these competencies. The first report (Wylie, Thompson & Hendricks 1996) concluded that children’s competencies were affected by the length of their early childhood education experience and that more was better for early mathematics and motor skills. The second study (Wylie & Thompson, 1998) reported that a year after they left early childhood education, the early childhood experience continued to make a contribution to children’s competency levels. Associations with literacy and mathematics remained and new associations emerged: perseverance, communication, logical problem-solving. This study cautioned about short-term follow-ups and suggested that the evaluation of the full impact of early childhood education could only be examined by collecting both current and longitudinal data. The third study (Wylie, Thompson & Lythe, 1999) reported that children who had at least three years of early childhood experience scored higher on competency measures for mathematics, communication, word recognition, fine motor skills, individual responsibility and logical problem solving. This study reported that the early childhood education experience had enduring and concurrent effects on the children’s competency levels. Positive benefits remained evident after three years. It was interesting and encouraging to note that children who started before the age of two had higher scores and that low income children with four years of early childhood education experience achieved as well as high income children for literacy and communication.

In sum, research shows that early childhood education in general has important impacts on cognitive development and abilities associated with school success immediately and in the short-term. Effects appear to be partly dependent however on other factors such as program quality and home environment. In this respect, intervention programs in particular are seen as protective of children who would otherwise be at risk. Overall these programs of targeting children are seen as useful, protective and positive. However, as Ochiltree (1994) points out there are two potential problems in relation to these programs: the danger of stereotyping the participants or setting them apart in a segregated system. Therefore the idea of targeting children at-risk needs to be evaluated in a larger context, with due consideration given to these potential problems and their short-term and long-term implications.

**Long-term outcomes**

**United States** - Barnett (1998a; 1998b) carried out an extensive review of 38 American studies to examine the long term effects of early childhood education (before the age of five) on children in poverty. A table including a summary of these studies is presented in the Appendix (see Table 1-1 & Table 1-2). In this section, we present a summary of the overall results of these studies in order to indicate the trends across the studies.
Most long-term research carried out in the US has focused on the effects of early childhood education on cognitive ability and school success. Studies are either model programs or large scale programs (for a list of each of these please refer to Appendix 1). Generally, the outcome measures include IQ, achievement scores, grade retention, special education placement, and high school graduation. A relatively small number of studies also report results for socialisation and parent outcomes.

The most common conclusion reached by these studies is that the effects on cognitive development (including IQ) declines after leaving the programs and these effects are eventually lost altogether. Some effects may persist on certain measures of school success such as grade repetition and special education placement. Though this is the general trend of the findings, the results of some studies challenge this conclusion. Barnett (1998a) observes that what is puzzling is the evidence which suggests that other long term effects on school success persist (see below) but cognitive effects do not.

Evidence of achievement effects was strongest in studies that randomised assignment to program and control groups (e.g. Abecedarian and Perry Preschool Study). These effects persisted up to ages 14 and 15. In contrast, none of the quasi-experimental model program studies found persistent effects on achievement. Barnett (1998a) suggests that evidence of fade-out in achievement results of the latter appears to result largely from flaws in research designs, very high attrition rates and other biases for achievement-test data.

Across the different studies, findings were relatively uniform and constituted overwhelming evidence that early childhood education can produce sizeable improvements in school success. All but one model program reported that grade retention and special education rates were lower for the program groups and that high school graduation was higher. The Syracuse University Family Development Research Program (FDRP) did not contradict this finding as such but reported that there was no statistical differences between the groups at Grades 7 and 8. The High/Scope Perry Preschool Study is used to exemplify these findings. This study followed the life of 123 children from African-American families who lived in Michigan in the 1960 for almost three decades. The children were randomly divided into a program group that received a high quality active learning early childhood program and a no-program group that received no early childhood education programs. The program group had significantly higher scores for school achievement at age 14, general literacy at age 19, and a higher percentage of them completed school (71% vs. 54% completing 12th grade or higher). Participants of the program group also spent fewer years in programs for educable mental impairment (15% vs. 34% spending a year or more in EMI during their schooling).

Although Barnett (1998a; 1998b) only reviewed outcomes up to the end of schooling, two studies are used as illustrations of long term effects beyond the compulsory school age.

The High/Scope Perry Preschool Study followed students up to the age of 27 (Schweinhart, Barnes, and Weikart, 1993). At age 27, the program group earned
significantly more per month (29% vs. 7% earning above $2000 a month); had higher percentages of home ownership (36% vs. 13%) and second car ownership (30% vs. 13%); a lower percentage of them received social services in the previous ten years (59% vs. 80%) and had fewer arrests (7% vs. 35% having five or more arrests) compared to the no-program group. This study concluded that the findings listed have economic value for society. Compared to the program’s cost, the benefits made the program a worthwhile investment for tax-payers as well as for society in general. Over the lifetime of the participants, the early childhood education program returned to the public an estimated $7.16 for every dollar invested. These benefits far exceed the returns on investments in the stock market (Barnett, 1998).

Barnett (1998) in his comprehensive review of the literature, says that the only benefit-cost analysis conducted so far has been on data from the High/Scope Perry Preschool study. Although the Head Start studies do not provide all of the data necessary for a comparable cost-benefit analysis, comparable effects on grade retention, completion of schooling, avoidance of special education were found. Since such public education programs are considerably cheaper than the Perry Preschool model “it seems fair to conclude that public ECE programs are likely to be a sound economic investment” (Barnett, 1998, p. 36).

The Syracuse University Family Development Research Program (Lally, Mangione, and Honig, 1988) evaluated the long range impact of an early intervention with low-income children and their families. In this study a complement of resources (educational, nutritional, health and safety, and human services) were provided to 108 families, beginning prenatally and continuing until the children reached elementary school age. The researchers concluded that in the long term, the program had a positive impact on both the children and the families who participated in intervention. The program families in general tended to value prosocial attitudes and behaviour, education and family unity. And the program children in particular expressed positive feelings about themselves, took a more active role in their personal problems, and regarded schooling as a vital part of their lives. The strongest effects were felt in the domain of social deviance and functioning in the community. This study concluded that high quality early childhood programs prevented the incidence and severity of juvenile delinquency in children with low-income communities.

Zigler and Styfco (1994) suggest that the results of these high quality programs do not reflect the likely effects of large established programs in the US like Head Start, which serve a somewhat different clientele over a briefer period of time with much less rigorous control over quality. In the face of the evidence provided by the different range of programs, Barnett (1998a, 1998b) and Lamb (1998) conclude that increasing the quality of public programs to approach the levels of model programs would be necessary in order to improve the effectiveness of early intervention programs like Head Start. The outcomes would be beneficial for the participants and their families in particular, and for government, the tax payers and society in general.

Boocock and Larner (1998) carried out an extensive literature review on the long term outcomes of studies carried out in nations other than the US. This review is based on studies of early childhood programs conducted during the past two decades. This
ECE Literature Review

Chapter 4: The Effects of ECE

section is adapted primarily from this source, although primary sources are also used. It is aimed to give some indication of the kinds of projects available internationally and what the findings of these studies are suggesting in terms of the long term effects of early childhood education. These studies can be classified in three major groups: large scale surveys, studies comparing children with different child care or early childhood education experiences and evaluations of particular program models. Rather than grouping the studies in relation to the outcomes, they are presented by country in order to be able to provide a context for the particular findings.

Canada - Although there is no comprehensive national early childhood policy in Canada, social welfare policies and programs are more inclusive and generous than in the US but less than those in Europe, according to Boocock and Larner (1998).

The Victoria Daycare Research Study examined the experience of 105 children in child care centres, care in the homes of regulated child care providers and care by unregulated child care providers (Goelman and Pence, 1987). This study reported high correlations between family resources, quality of setting, and children’s cognitive and social development. In effect, children who attended centres tended to have higher levels of language development and more highly developed play and activity patterns. Quality of care in family daycare was more variable and a more potent predictor of children’s language development. Across settings, the quality of care exerted more influence on the development of lower-class children. This study pointed out that child care often exacerbated socio-economic inequities rather than reducing them with many children experiencing “the worse of both worlds” in that they came from low-resource families and attended low quality family day care. However, according to Boocock and Larner (1998), the kinds of longitudinal data needed to assess the long-term effects of early child care experiences have to date not been gathered.

Western Europe - According to Boocock and Larner (1998) the most highly developed systems of early childhood education in the world exist in the European Community and the Nordic nations.

France - The Ministry of Education conducted studies between 1983-1990 to gauge the effects of its large-scale expansion of the early childhood education system on later success in school (McMahan, 1992). L’école maternelle is presently attended by close to 100% of three to five year olds and a growing number of two year olds. The survey findings indicated that every year of early childhood education reduced the likelihood of school failure especially from children from disadvantaged families. Each year of preschool narrowed the gap between children whose fathers were in the highest occupational category and those with unemployed or unskilled fathers. (The gap was 30% for children with one year of early childhood education, 27% for those with 2 years and 24% for those with 3 years).

United Kingdom - It has a more diverse system than France, with 44% of British three and four year olds attending public or private nursery schools, and many entering public school classes at the age of four (Curtis, 1992). In the UK, public investment in full-day child care is limited (Boocock and Larner, 1998).
The Child Health and Education Study (CHES) followed the development of all the approximately nine thousand children born in one week in 1970. Data were collected on the cognitive functioning, educational achievement, and behaviour ratings by mothers and teachers when children were five and ten years old. Comparisons between children who attended playgroups, private or public nursery schools or no early childhood education showed that experience in any early childhood education (including playgroups) contributed to cognitive development and school achievement throughout the period studied. Disadvantaged children gained slightly more from attending early childhood education. The early childhood education experience did not affect children’s socio-emotional development, such as self-concept, skill in getting along with others and their ability to apply themselves to schoolwork. This project concluded that the experience per se had more influence on children’s subsequent development than the type of early childhood service attended: proper care, interesting activities and other children to play with were important and common elements in the majority of the early childhood options.

**Germany** - Here 65% - 70% of children between the ages of three and six years attend half day kindergarten which is provided by the government at no cost to parents (Moss, 1990).

To evaluate whether providing early childhood opportunities increased elementary school success, researchers analysed statistics collected routinely by schools (percentages of children retained in grade, or assigned to special education classes, and community factors such as population density, SES, number of early childhood places in school district). This study combined data from 203 elementary schools in one state and produced results similar to the British and French surveys. Teitze (1987) concluded that:

> taken together, the large-scale studies of the French, British and German preschool systems provide solid evidence that preschool attendance under the “normal, everyday conditions of well-established preschool service” can have positive effects on children’s school readiness and their subsequent academic performance (p. 151).

**Sweden** - Programs offering full-time child care are the centrepiece of Swedish early childhood systems and this is not surprising given that 86% of Swedish mothers with preschool children are employed (Boocock and Larner, 1998). It is important to point out that Swedish child care environments differ considerably in such characteristics as group composition, atmosphere and staff experience and working methods. Government funding and oversight ensures that variations stay within specified limits and do not fall below an agreed upon threshold of quality (Lamb, Hwang & Broberg, 1991).

Systematic studies of Swedish child care have been carried out since the mid-1960s (Lamb, Hwang & Broberg, 1991). In contrast to the French, British and German studies, Swedish studies generally use small but carefully designed samples, and collect data that allow detailed comparisons of existing programs. Swedish studies
(e.g. Andersson, 1992; Broberg, Hwang, Lamb & Ketterlinus, 1989; Cochran & Gunnarsson, 1985) have shown that nonparental care of adequate quality, even for infants and for long periods of time need not have adverse effects on children’s development and well-being. In fact it may benefit children in many ways (e.g. higher verbal ability, persistence, independence and confidence and lower anxiety). Andersson’s (1992) study for example which followed 128 children born in 1975, from the age of three to age thirteen, concluded that: “early entrance into day care tends to predict a creative, socially confident, popular, open and independent adolescent” (pp. 32-33).

Ireland - The study reported on here differs from the previous European ones in that it examines an experimental program that targeted children living in an impoverished area of Dublin. This Dublin project (Kelleaghan and Greaney, 1993) offered a two year half-day program to 90 children who were aged three in 1969. The program aimed to enhance children’s cognitive development, learning skills and personal and social development. It also sought to involve parents in the children’s early childhood experience through home visits by teachers and social workers. The measures of cognitive development, school achievement and parent involvement were collected at age 5, 8, and 16 for program participants as well as for a control group of 60 children who came from the same neighbourhood. The findings of this study suggested that the least able children benefited the most from the program. By the time they reached secondary school, the preschool participants were more likely to remain in school and they were 2-3 times as likely to take examinations required for further education.

East Asia - These nations have high rates of enrolment in formal early childhood programs. Therefore studies from Japan, Singapore, South Korea examine the effects of the early childhood experience on child outcomes either by comparing two broad types of early childhood programs (Japan, Singapore) or by comparing a variety of specific early childhood models (South Korea).

Japan - Early childhood services are broken into two segments:

- yochein which falls under the Ministry of Education includes primarily private, part-day programs designed to prepare 3-6 year olds for elementary schools.
- hoiku-en which falls under the Ministry of Welfare, provides full-day programs for children (of all ages) who are considered in need of care by the authorities. Boocock (1991) suggests that more that 90% of Japanese children attend one or the other or sometimes both, before they enter primary school.

A retrospective study of 4000 fifth graders, carried out by Nitta and Nagano, (1975) addressed the question of whether early childhood experience is associated with higher scores on national achievement tests. The sample included equal numbers of children who attended yochein, hoiku-en or neither type of program. This study found that children with early childhood experience of either type had higher test scores than those who attended no early childhood program, but that relationship was affected by the family’s SES. Overall, children who attended yochein received the highest test
scores. However, working-class children did best if they attended the full-day hoiku-en. The researchers speculated that the more academic early childhood programs were less suited to the needs of these children than the full-day programs which offered more comprehensive services. This conclusion echoes the Canadian findings by stressing the importance of examining the fit between the needs of low-income children and the characteristics of the early childhood programs they attend.

**Singapore** - According to Boocock and Larner (1998), the majority of children (more than 70%) participate in programs offered by the dominant political party.

In 1983, a nine year study was launched by the National Institute of Education to produce a developmental profile of the nation’s preschool children. The aim was to compare the outcomes of the different types of early childhood programs and to develop a plan for improving the curriculum and teacher training (Sim and Kam, 1992). A sample of 2,413 three to six year olds, selected from 10% of schools, were observed and tested on a broad array of cognitive and behavioural measures at four points over two and a half year periods. The results of this study indicated that early childhood experience prepared children to handle the academic demands of elementary school and also improved children’s skills at sharing and co-operating.

**South Korea** - A longitudinal study was carried out in South Korea kindergartens during the mid-1980s to explore the effects of different early childhood educational models on children’s development (Rhee and Lee, 1990). This study included 121 children from four kindergartens that reflected four approaches (Montessori, open education, child-centred traditional and academic drill). The measures of these students were compared with those of 31 children who had no kindergarten experience. The main conclusion reached by this study was that although the four approaches yielded different patterns of school readiness, the distinctions faded by fourth grade and were gone by seventh grade, but that the long term advantages of the early childhood experience as such were large, relative to the small differences found between the different forms of the early childhood experience.

**Australia** - It is estimated that 32% of children aged between three and five attend part-day early childhood programs and another 20% are in child care centres (McLean, Piscitelli, Halliwell and Ashby, 1992)

In a study carried out by Ochiltree and Edgar (1990) data was gathered from 8,471 urban mothers of first year elementary school children about their children’s social and emotional problems that indicated a lack of readiness for school. The findings of this study echoed the Swedish child care research and concluded that participation in nonmaternal care even in the first year of life did not put children in greater risk of developing these problems. Interestingly, this study suggested that family background factors, including ethnicity, finances, and mothers’ satisfaction with their lives had greater effects on the children’s socio-emotional development and school readiness than did maternal employment and the exposure to child care that follows from that.

**Developing Nations** - A number of projects have attempted to improve children’s overall development through preschool programs that link nutritional supplements and
health education with activities offering cognitive and psychosocial stimulation as well. The following is one example of these projects.

The Cali Intervention Program carried out in Columbia is an early childhood program integrating nutritional supplements, health surveillance, child care and educational components (McKay and McKay, 1983). A sample of 301 poor and malnourished children were assigned to groups and they began the program at ages 3, 4, 5, or 6 or not at all. A longitudinal evaluation was carried out in order to compare the children in the program with those in the control groups and to examine how the duration of the treatment affected the children’s physical growth, cognitive development and retention in grade until they reached ten years of age. The results showed that all of the participants in the experimental groups improved more in their cognitive ability and the size of their gains was related to the length of their treatment. Those children who received nutritional supplements without participating in early childhood activities made significant gains in height and weight but their cognitive abilities did not improve until they entered the program. This study in particular provides convincing evidence regarding the potential of well-designed early childhood interventions for fostering physical, mental and social growth among chronically deprived children.

The evidence then is quite convincing that:

- High quality, intensive programs can have short-term positive effects on cognitive development as well as longer-term positive effects on school-based placements and out-of-school behaviors. In spite of these positive findings, there is general agreement that while they help, preschool programs alone are not enough to ameliorate the effects of poverty (St Pierre and Lazar, 1998, p. 359).

**Messages from Research**

These studies together provide some forceful evidence about the long term effects of early childhood education.
- Maternal employment and participation in out-of-home early childhood education even during infancy appear not to harm children and can yield benefits to children and their families if it is of adequate quality.
- Attendance at early childhood education programs is associated with cognitive gains and improved performance in school throughout the world.
- Social gains are reported mainly from intervention studies with high-risk children but the experience can help all children develop social competencies.
- Having some early childhood program experience appears to matter more to children than exposure to any particular curriculum or program model.
- The early childhood program experience appears to be a stronger force in lives of low-income children than middle-class children.
- Early childhood program attendance can narrow the gaps in achievement that separate children from different SES backgrounds, but not entirely remove the gaps.
The benefits of early childhood education affect children’s experiences inside and outside school and influence their life chances in numerous ways.

**Further Research**

With regard to gaps in research, there is very little research done in New Zealand which looks at the long-term effects of the quality of early childhood services from birth and including an analysis of the home characteristics as well. Because of the unique guidance provided by the *Te Whāriki* curriculum, it would be valuable to explore the effects of early childhood experiences for New Zealand children. The Competent Child study follows children from the age of 4 years of age and is providing valuable information. It would be helpful, though, for this examination of long-term effects to continue. Yet it would also be useful to follow children from birth and carry out prospective analyses of the influence of the quality of the three microsystems of home, early childhood centre and school. In the United States, the NICHD study follows children from birth, and will provide very valuable information. A British study (Sylva, Melhuish, Sammons & Siraj-Blatchford, 1999) is following 2500 children from 3 to 7 years of age, and will examine the separate effects of early childhood and primary education on children’s performance. In New Zealand it is important to also examine the effects of the first 3 years of life since the government does subsidise provision for under 3 year-olds, and there are many theoretical and empirical reasons for believing these early years to be important. It is important for any new longitudinal research to focus on determining which components of early childhood programs are responsible for which outcomes.

Other important questions which need to be addressed are the following:

- What are the differences between the cultural context of home and early childhood program which influence children’s early learning and development, and how effectively do New Zealand early childhood programs bridge any gaps between home and early childhood programs?
- How do children from different ethnic backgrounds cope with dual socialisation at home and in non-parental care if there are substantial cultural differences?
- Which are the key components which influence the long-term effectiveness of early childhood programs, and how do these differ according to type of family or cultural background?
- How do macrosystem factors such as funding policies influence the outcomes of early childhood programs?

Children are entitled to early childhood education and care which will not only enhance their future development, but give them a sense of well-being in the present. Research needs to move from the seemingly endless quest for negative effects of non-maternal and/or non-parental care to questions that are more relevant to the current situation of families and young children. One of these issues is to search for factors that enhance children’s development across early childhood settings, rather than for factors that differentiate the two types of care. The danger of the latter approach is that regardless of researchers’ intentions, it tends to set up types of early childhood setting...
rather than specific characteristics of child care as superior or inferior. Because of the important niche each type of care fills, research that focuses more on characteristics than on types of care is ultimately more useful.
Chapter 5

The Quality Issue

Quality is about the early childhood microsystem, consisting of roles, relationships and activities - the sociocultural context within which children learn and develop. Quality is defined here as the essential components of early childhood environments which are valued in our society, and which support the well-being, development and rights of children, and support effective family functioning. The concept of quality is under debate at the moment, but there is a large body of relevant empirical literature on this issue so it should be covered in an early childhood literature review. Almost all of the research in early childhood education looking at outcomes, concludes that by far the most important issue which influences outcomes in early childhood education is quality.

Research on the nature of quality in early childhood education is part of the third wave of research (Lamb & Sternberg, 1990), which represented a move from the crude Does early child care have harmful outcomes for children? question, towards identifying specific variations in the early childhood setting and how they affect outcomes for children.

Decades of research have made clear to policy makers that one cannot make blanket statements about the superiority of exclusive maternal care, paternal care, or nonparental care. In each case the quality of care appears crucial; the development of most children is affected by the quality of care received both at home and in out-of-home care facilities and by the extent to which the care is sensitively adjusted to be appropriate given the children’s developmental and individual needs (Lamb, 1998, p. 81).

The subsequent decade of research focused in depth on the complex set of variables which make up a good quality educational environments for young children. Much of the research conceptualises quality in terms of demonstrated relationships with child or family outcomes. For example:

In the case of child care, this means that good-quality Early Childhood Education services should promote the development (cognitive, social, emotional, motor, moral) of the children they serve as well as facilitate work force participation by parents (Helburn et al., 1995, p. 25).

As has been argued above, this is a narrow view of quality, but nevertheless it is useful to look at the literature as part of the overall picture. Michael Lamb, a well-known U.S. scholar, argues that it is impossible to write a universally applicable recipe for high-quality care which is universally acceptable, and that quality care must be defined in respect to the characteristics of particular societies and subcultures (Lamb, 1998). It is important to note that many viewpoints on quality can be identified even within one cultural setting - for example the child development, the government
or regulatory perspective, the welfare or social services perspective, the parent perspective, the cultural perspective, the social policy and funding perspective, and the child’s perspective (Farquhar, 1990). How quality is defined depends on the concern of the stakeholder. For example, when quality is viewed from the perspective of parents the criteria usually include the happiness of the children, geographical location, accessibility, affordability, and relationships between parents and staff, whereas the social policy perspective is more likely to be linked to the willingness of the State to provide funding for early childhood services, accountability concerns and possible trade-offs between quality and cost (Ochiltree, 1994).

As researchers and child advocates we are also concerned about the well-being and rights of children, who are probably the most powerless of all the stakeholders, and the ones who are least likely to have their voice heard. Considering that children are the recipients of these services, we would like to see their perspectives given a much more prominent place in the ongoing dialogue and their perspectives incorporated into research outcome measures, as has done in Scandinavia (Langsted, 1994). It is, however, important to include the findings of studies concerning other developmental outcomes since children’s life chances are likely to be enhanced by such outcomes. They need to be supplemented, however, by studies which look at how children interpret their experiences in early childhood education.

A children’s rights perspective on the quality issue, is in our view, well overdue. The United Nations Convention on the Rights of the Child (UNCROC), which New Zealand signed in 1993, deals with provision, protection and participation rights. Provision deals with access to goods, services and resources (including health and education); protection covers making sure that children are not abused, neglected, exploited or discriminated against; and participation relates to respect for children as active members of society with a voice to be listened to. The UNCROC obliges us to give the best interests of the child “primary consideration” (Article 3), to allow them access to an education (Article 28) which provides opportunities for the fullest development of their talents and respects their cultural identity (Article 29), to give them opportunities for play, leisure and recreation (Article 31), to allow children with disabilities effective access to education and care which will enhance their achievement and integration into society (Article 23), and to allow indigenous children the rights to the preservation of language and culture (Article 30). The right to have a voice and to have it listened to and respected (Article 12) is another important element to children’s rights. Alderson (in press) has made a strong case that children from infancy are capable of communicating with adults and that they have views and wishes which should be respected. These views can be “heard” and acted upon if there are sensitive and responsive adults available. All of the above articles and many others, have major implications for how we define and implement quality early childhood education in New Zealand. While a full treatment of the rights issue is not possible within the space available, the issue of the rights of young children is

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3 Subjecting children to mediocre or poor quality childcare would violate their protection rights.
4 Findings that the influence of early childhood education have a lasting effect on children’s development suggest that Article 28 rights are violated if children do not have access to high quality early childhood education.
being given serious attention by researchers in the sociology of childhood paradigm (Alderson, in press; James & Prout, 1990; Mayall, 1994) and this research has many implications for early childhood education.

We must recognise that there are different perspectives and that good practice involves judgement as well as cultural and societal values. There is no “one true way” and quality will involve negotiation and argument between stakeholders, and balancing of multiple perspectives (Dahlberg et al., 1999). Rosenthal (1994) argues that the empirical search for relevant regulatable and process variables should continue, but that cultural and social values should be acknowledged and be part of the investigation. The view that one stakeholder’s view is as good as another, has been questioned, as this would lead to a completely relativistic approach and perhaps elevate the perspectives of adults over the rights of children (Cryer, 1999; Smith, 1996b).

It comes down to the issue of how we negotiate a set of values to guide the directions of our early childhood programmes. .. Such values need to incorporate the views of an involved and participating group of stakeholders; to reflect our culture, history and cumulative early childhood discourse; Up-to-date knowledge about children and the child’s best interests (Smith, 1996b, p. 87).

This approach is appropriate within a New Zealand setting which values diversity, and in our view is already reflected in the New Zealand approach to early childhood education through the adoption of Te Whāriki, our early childhood curriculum. This has been the outcome of considerable dialogue and reflection amongst staff, parents, and the variety of cultural groups, and participants in different types of early childhood program who make up the mosaic of early childhood stakeholders in New Zealand.

The General Effects of Quality

Before analysing in more detail the research on structural and process quality, it is important to look at the overall findings of the effects of global quality. In a very recent review of more than 500 research papers, not just from American research, but from the international research literature, Lamb (1998) concludes that:

Many researchers ... have attempted to assess the predictive importance of the quality of care, and there is clear consensus that the quality of care, broadly defined and measured, modulates the effects of non parental child care on child development. Interestingly, improvements in quality appear to have significant positive effects even at the highest end of the range sampled, suggesting that there is no threshold beyond which the quality of care no longer matters. The magnitude of the effect is considerably less clear than its reliability, however, and the fact that researchers must estimate the importance of quality in the context of complex correlational models that also include a range of other potential predictors in studies involving widely varying samples.
makes it doubtful that we will ever really know how important quality is in an absolute sense (Lamb 1998, p. 116, emphasis added).

Since quality has been defined in terms of its effect on child outcomes, there is a certain circularity in stating that quality has a positive impact on child developmental outcomes. The issue, however, needs to be seen in the light of the history of early childhood research, where there were concerns that long periods away from maternal care might affect children adversely. The research moved from looking at potential negative effects of undifferentiated program participation effects, towards providing a much more contextualised description of different care arrangements, in an effort to determine which specific aspects of children's experience had an effect on their development.

Research from a number of reviews of literature shows that high quality early childhood education and care from infancy has a positive effect on children’s verbal, intellectual and cognitive development, especially when they would otherwise experience impoverished and unstimulating environments (Barnett & Boocock, 1998; Bowman, 1993; Cryer, 1999; Ochiltree, 1994; Lamb, 1998). While there have been some mixed findings concerning the effect of child care (especially during infancy) on social behaviour, such as attachment to the mother, positive social relationships, compliance to adults and behaviour problems, the research literature shows that the effects are positive, provided that the care experienced is of high quality.

Recent research has examined the relationship between, and relative impact of, the quality of education and care received within and outside home. As was mentioned earlier, there is a problem with centre quality not being totally independent of home quality. It is important to look at the effect of non maternal early childhood experience in the context of the ecology of the family, in order to look at the separate and joint effect of early child care experience. The issue of whether quality of early childhood services has an independent effect aside from family variables on outcomes, is one which has been looked at in several recent studies.

Burchinal, Ramey, Reid & Jaccard (1995) looked at the effect of home and early childhood centre environment on cognitive and behavioural outcomes in 333 infants from a representative sample of middle class Washington (Seattle) families. Associations were found between early childhood experience outside of the home, and family characteristics known to predict positive outcomes - such as parental education and occupation. Children in the sample who attended an early childhood centre had mothers with higher IQ’s educational levels and higher occupational status. Attendance at an early childhood centre was associated with higher Verbal IQ’s and externalising scores on the Child Behaviour Checklist. For African-American children early childhood centre attendance had particularly positive outcomes including higher verbal intelligence scores and higher ratings of positive behavioural attributes. The study suggested that early childhood outcomes should be looked at in the context of family and child characteristics.

Burchinal, Roberts, Nabors and Bryant (1996) carried out a further study looking at cognitive and language development in a sample of 79 low-income African-American
infants (aged 1 year), looking at the effect of quality of home care and structural and process measures of quality in early childhood centres, on child outcomes. Quality of early childhood centre care was systematically measured using the ITERS (the infant version of the ECERS scale). The study showed that quality of care in early childhood centres and at home were positively related and that the quality of infant early childhood care was a significant correlate of child cognitive and language development outcomes. When analyses adjusted for the association between home and centre quality, however, it was found that that quality of early childhood centre care had an independent effect on infant outcomes.

The National Institute of Child Health and Development (NICHD, 1998) study has followed a representative sample of 1085 children from birth until 3 years of age. Extensive and detailed observations of both home and non home care from birth, are allowing unprecedented study of the interaction between home and other care in this study. This study is still only able to look at immediate effects, as data collection is ongoing. This study (unlike some previous studies) shows that the quality of family care is a stronger predictor of child outcomes than child care (which predicted less than 3% of the variance in self-control, compliance, and behaviour problems). Quality of nonmaternal care consistently predicted a range of child outcomes, but when family variables were controlled, two out of the 6 significant effects of child care quality, were reduced to non significance. Children in good child care had more educated mothers, higher socioeconomic status and more stable child care arrangements. Another publication (NICHD, 1998) looked at the influence of maternal sensitivity and child care experience on children’s attachment security with their mothers. There was no significant main effect of child care experience on attachment security, but there were strong significant effects of maternal sensitivity and responsiveness. However the study revealed that the combination of low maternal sensitivity and poor quality child care, or more than one child care arrangement was associated with the lowest levels of attachment security.

The most recent findings of the NICHD study were reported at Albuquerque, New Mexico this year in a symposium examining the size of effects of early child care. The symposium looked at the issue of whether child care quality matters and whether it is of practical importance. To summarise the complex findings of this study, effect sizes (which measure the size of the effects of different variables) for child care quality were about half of those for home quality. The authors argue that the home effects reflect both genetic and environmental influences, but that this confounding is reduced by the measuring of child care effects because family selection is controlled statistically. The study showed that quality effects were greater generally for cognitive variables than for home variables. McCartney (1999, p. 7) argues that the results support “that child care quality does indeed matter for school readiness and language” but that “there is little evidence in these models that child care quality matters for social behaviour”. She cautions, however, allowing social policy to be guided by one study and urges the need for meta-analytical studies to look at a much wider range of studies. Another caution is that it is unclear yet what the long-term effects of child care quality and home quality will be. While the most recent NICHD studies show smaller child care effects than previous research (Lamb, 1998), they do suggest, that at
in a contemporary U.S. context that the effect of child care is not independent of family effects, and that family effects are more powerful.

**Structural Quality**

This consists of relatively easily observed and measured, and therefore regulatable aspects of quality. Structural quality is usually contrasted with process quality, which involve those aspects of an early childhood education program which children actually experience, such as teacher-child and child-child interactions. Structural quality consists of “the characteristics which create the framework for the processes that children actually experience” (Cryer, 1999, p. 40). Examples of measures of structural quality are:

- Adult-child ratio
- Group size
- Staff training, education and experience
- Staff wages and working condition
- Staff stability

**The Iron Triangle: Ratio, Group Size and Training**

The first three criteria on the above list, ratio, group size and training are generally described as “the iron triangle” of quality which are the three most important structural variables, and on which many other aspects of quality depend. It is difficult to isolate the effect of a single quality indicator because good things go together - especially ratios, group size and caregiver training.

Research on specific aspects of quality has led to general agreement that the most important predictors of better outcomes on a range of measures of both cognitive development and socio-emotional development, for children in non-parental care are staff-child ratio, group size and education of the caregiver (Ochiltree, 1994, p. 34).

Social interactions and relationships between adults and children are an important component of the child’s microsystem, influencing children’s opportunity for joint participation and attention, exposure to language and problem-solving situations, and providing physical safety, health and emotional security. It is not surprising, therefore, that quality involves ratio, training and group size.

It is important for children to have access to one or more adults who are skilful in working with young children, in an environment where regimentation and control are not the prime consideration. These structural variables, however, are necessary but not sufficient for quality. For example there might be a good ratio in a centre, but the adults might not engage with the children.

**Adult-child ratio**
Child Ratio has been identified as linked to quality ever since the seventies when a well designed American study was published (Ruopp et al, 1979). Lower ratios (more adults per child) have been linked to such factors as increased frequency of adults playing and talking to children; fewer upset and apathetic children; more child engagement in complex play; more physical contact and smiling; more appropriate (less restrictive and controlling) caregiving; and greater staff job satisfaction (McGurk, Mooney, Moss & Poland, 1995; Ochiltree, 1994). Staff-child ratio has been identified in many studies in a variety of countries as a key determinant of high quality early childhood services (File & Kontos, 1993; Helburn, 1995; Howes, Phillips & Whitebook, 1992; Howes, Smith & Galinsky, 1995; Neugebauer, 1995; NICHD, 1996; Palmerus & Hagglund, 1991; Phillips, Mekos, Scarr et al., 1999; Russell, 1985; Smith, McMillan, Kennedy & Ratcliffe, 1989; Whitebook et al, 1989).

McGurk et al. (1995) carried out a comprehensive review of a range of international studies looking at the importance of staff-child ratio in early childhood centres (of diverse types) in determining outcomes. The review is particularly useful because it provides information about the range of actual ratios which are required in many countries beyond the shores of the United States. The context of United Kingdom centres is somewhat comparable to New Zealand, with nursery classes having similar (though slightly more favourable) ratios (1:11) of teachers to children as kindergartens in New Zealand (1:15). The review showed research covered centres with ratios varying from 1:2 to 1:9 for infants and from 1:7 to 1:30 for three and four year-olds.

McGurk et al (1995) point out that cultural values about ratios have an important influence on the actual ratios existing in different countries. Ratios are sometimes excellent in countries even where there are no national regulations on ratios. For example Danish ratios are much more favourable than English or New Zealand ratios. However in Denmark (and other Scandinavian countries) there has been widespread consensus amongst parents and politicians supporting good staff:child ratios for many years. In contrast in Japan ratios of 1 to 30 for 4 and 5 year-olds are acceptable, because they are believed to be compatible with Japanese values of groupism and selflessness, as opposed to Western individualism, even though these ratios are acknowledged by Japanese as often leading to chaos (Tobin, cited by McGurk et al, 1995).

Another important point made in this review is that it is difficult to consider one structural criterion like ratio, in isolation from others. Ratios are definitely an important variable which affect quality, but they need to be considered in relationship with other variables such as training. An American study (Howes & Marx, 1992) carried out in French “ecoles maternelles” found that ratios (and group sizes) were well outside what was regarded as appropriate in the United States, but that teachers were highly trained, selected and well paid and programs were carefully planned and monitored. The researchers were surprised to find that there was not a high level of harshness and regimentation, as had been shown in American centres with poor ratios. Rather children were treated with respect and there was a calm and purposeful atmosphere in the centres. The authors believed that it was possible that high pay and good training for teachers could have offset the poorer ratios and group sizes in France.
Very few studies have actually looked at the effect of changing teacher ratios on child outcomes - this type of study is better able to establish causality. Three experiments have been reported in the literature. Russell (1985) looked at the effect of changes in staff-child ratio in 27 South Australian kindergartens. Staff manipulated ratios so that in one session 24 children were present (ratio 1:8), in another 30 children were present (ratio 1:10) and in a third session 36 children were present (1:12). The results showed significant relationships between teacher-child ratio and both staff and child behaviour. When ratios were more unfavourable staff spent more time in social interaction with other children and tended to be further away from staff members. Children spent more time annoying and teasing others and staff were less likely to interact and to be close to children with poorer ratios. More positive staff behaviours were less likely to occur when the group was larger and the ratio poorer. Smith et al.’s (1989) New Zealand study looked at the effect of introducing a third teacher into kindergartens. This study showed that the actual kindergarten staff:child ratio was lower than the official ratio because of parent helpers participating in 3 of the 4 kindergartens studied, as well as child absences. The only effect of introducing a third teacher on children’s behaviour was to reduce the amount of negative “agonistic” behaviour between peers. But a qualitative analysis of teacher perspectives on the change in ratio, showed that how staff worked together and shared their roles had an effect on whether the third teacher could be effective (Smith et al., 1992). Only when there was clarification of roles and sharing of power did harmonious staff relationships occur when a new teacher was included. Howes et al. (1995, cited by Lamb, 1998) observed the effect of introducing stricter standards of training and provider-child ratios on staff child interactions and global measures of quality (ECERS). The higher standards of quality led to more positive interactions between children and adults and improvements on the ECERS scores of centres.

McGurk et al’s review provides overwhelming evidence that ratio is an important component of quality and that the research shows that high staff:child ratios are “almost invariably identified as settings providing quality child care” (1995, p. 22). Staff:child ratios is only one aspect of quality, and it tends to covary with other components of quality, like the employment of trained staff, better working conditions and more responsive and appropriate care, making it difficult to isolate the effect of a single quality indicator. This is confirmed by Scarr, Eisenberg & Deater-Deckard’s (1994) study showing that the key components of quality are highly intercorrelated. McGurk et al believe that the burden of evidence suggests that better outcomes for children and staff are associated with higher staff:child ratios. They caution, however, that it is not possible to identify ideal ratios because this depends on many factors, including the objectives of the service and the characteristics of the children (for example if there are children with disabilities higher ratios are indicated). Cathy Wylie gives a useful guideline for appropriate ratios:-

What the research does not provide is a guaranteed formula. In the case of staff:child ratios, actual rather than on paper, it comes closest to an agreed limit with infants, those under two years old, of 1:3 or 1:4; above 2 years, it suggests an age related range from 1:5 for 2-3 years to 1:8 for 3-4 year-olds and 1:9 for 3-5 year olds. A critical cut-off point, above which children are
harmed by their experience or gain nothing from it, is not clear but looks to be around 1:6-7 for infants and 1:11 or 12 for older children. It is likely to be lower for children from disadvantaged backgrounds (Wylie, 1989).

**Staff Training, education and experience**

Training and education is a major issue for early childhood education internationally. The increased recognition of the importance of the early years, the growing complexity of early childhood teaching and caregiving roles, and the management and leadership skills required of early childhood teachers, indicate that highly skilled and trained adults are needed to cope. Training should offer early childhood teachers with a framework of knowledge and supervised experience which will allow them to deliver the best kind of learning opportunities to children through working sensitively and responsively with them, as well as preparing them to be professionals who can plan, manage, assess and reflect on the effectiveness of their work with children and families. Training also weeds out unsuitable people and provides those who are "naturally" gifted with children, with an understanding of how children develop and are influenced by their environment.

The research literature has linked early childhood training and education to a number of other variables indicating quality, including a higher degree of caregiver stimulation (e.g. more social interaction and language exchanges); more joint attention episodes involving adult and child; improved quality of the classroom literacy environment; more parent involvement; more positive and less negative affect from adults; more child social competence, compliance and self-regulation; and greater child cognitive competence. There is, therefore, considerable evidence that interactions with children and child outcomes are positively influenced by staff training and education (Barnes, Guevera et al., 1999; Blau, 1997; Clarke-Stewart, 1987; Dunn, Beach & Kontos, 1994; Helburn, 1995; Howes, 1983; Howes et al., 1992; Howes & Galinsky, 1998; Kaplan and Conn, 1984; Meade, 1985; Neugebauer, 1995; NICHD, 1996; Ochiltree, 1994; Phillips et al., 1999; Prescott, Jones, & Kritchesky, 1967; Ruopp et al., 1979; Scarr, Eisenberg & Deater-Deckard, 1994; Smith, 1996a; Smith, 1999; Whitebook et al., 1989; White, 1993).

Anne Smith (Smith, 1996a; Smith, et al., 1995; Smith, 1999) carried out a study focusing on staff characteristics, especially training, in New Zealand early childhood centres. Smith surveyed a national sample of 100 child care centres catering for under two year-old children, and used observational and interview measures to assess various aspects of quality. Relationships between staff characteristics including training and various measures of process quality (such as Abbott-Shim & Sibley’s 1987 Assessment Profile) were examined. The study showed moderate to strong correlations between training and education variables and Abbott-Shim scores. The impact of early childhood training was strongest when there were more staff with three year training, and there were no significant relationships between lower levels of training and quality. “Centres with more staff with 3 year training had better planned, resourced and managed programs and children had more positive and responsive interactions” (Smith, 1996a, p. 30). The general level of staff education also proved a strong predictor of quality (the second strongest predictor of quality on a stepwise regression analysis), so that centres with larger percentages of staff with no school leaving qualifications tended to be of lower quality (beta=-0.30, p=0.0001). Also the
percentage of staff with 3 year training was the strongest negative predictor of children wandering and waiting (beta = -0.22, p=0.006). In other words the more staff in a centre with higher level qualifications, the less likely were the target children observed to be wandering around or waiting for another activity to start.

A more recent analysis of qualitative data from the study (Smith, 1999) showed that the presence of staff with three year training made a difference to the amount of joint attention experienced by children. Shared attention between adult and child to some object, activity or ideas (or joint attention), is considered an important aspect of the socioecological environment for children’s development. The study showed that there was a significantly greater number of joint attention episodes in centres where some staff had Diploma levels of training.

Kagan & Neumann (1996) compared the finding of three large U.S. studies relating training to outcomes. They ask in their review what is really meant by training in terms of policy outcomes. The three studies reviewed placed somewhat different emphases on general education (school and tertiary qualifications) and specifically early childhood training. The National Day Care Study found that general education was very important for the quality of infant/toddler care (therefore agreeing with Smith’s findings discussed above), but less important for preschool care. Specifically early childhood training was, however, associated with increased positive social interactions, and increased child attention spans, greater co-operation and compliance and more program involvement in the NDCS study. The Cost and Quality study showed that early childhood training was strongly related to quality, but that low levels of training made no difference (e.g. the Competency Based Child Development Associate program).

The only study to look at in-service training was the National Child Care Staffing Study which showed that participation in 15 hours or more of in-service training was associated with more sensitive, less harsh and detached caregiving. All three studies concluded that both general education and early childhood training had positive effects on quality and one study showed that in-service training had a positive effect. The authors concluded that a really important aspect of early childhood centre quality was that staff should possess a diverse range of educational and training backgrounds, skills and abilities. Good staff training policies should assess the individual training needs of staff and “attend to the professional development of teaching staff in ways that are inventive, individualised and effective” (Kagan & Neuman, 1996, p. 69). They believe that professional development opportunities, in-service training, mentoring programs and self assessment are all important in maintaining high quality care.

There is little doubt that staff training is a key component of quality and that policy efforts to improve training, such as regulations requiring services to employ trained staff, support and monitoring of training providers, opportunities for in-service training and professional development, career opportunities and rewards for training, are important. Smith’s (1996a) study showed disappointing levels of training amongst child care staff in the early nineties. It is likely and to be hoped that levels of training will have improved since that time, with the introduction of Te Whāriki and associated
professional development opportunities, as well as other policies, such as the quality funding scheme. In New Zealand many early childhood professionals are given good opportunities for preservice and in-service training (Gaffney & Smith, 1997) and these are viewed favourably by international colleagues (Moss, 2000).

Moss, does however point out how disappointing it is that moves towards accepting a three year diploma as an early childhood benchmark in New Zealand have been so slow, and puts this down to lack of government commitment, inadequate resourcing and resistance from some sectors of the workforce. The research on training suggests that having Diploma level training as a benchmark and moving towards the development of a fully trained early childhood workforce is important for the quality of our early childhood services. Future research efforts should monitor both the quantity and quality of training programs, the number of trained staff in different early childhood services, and opportunities and barriers to training.

**Group Size**

Group size is the final variable in the iron triangle which has been found to be associated with quality. Small group size may “create a more comfortable environment for children” and opportunities for “quiet, focused activities” (Frede, 1998, p. 91). Large groups seem to evoke more restrictive behaviour, supervisory roles and regimentation by adults. Small groups are associated with less noise and more opportunity for adults to relate one-to-one with children in joint activities. Larger group sizes have been associated with lower global quality, more adult restriction and control, less positive caregiving, less social interaction, more crying, less talking and playing, more separation distress, lower language and complexity of play scores, lowered social competence, decreased creativity and co-operation and fewer episodes of joint attention (Clarke-Stewart & Gruber, 1984; Clarke-Stewart, 1987; Frede, 1998; Howes & Rubenstein, 1985; NICHD, 1996; Ochiltree, 1994; Phillip et al., 1999; Ruopp et al., 1979).

Teacher perceptions of increases in group size in New Zealand kindergartens in the early nineties were examined by Renwick and McCauley (1995). Teachers working in kindergartens with 45 children listed only negative consequences for children, staff and the quality of programs, from having to work with such large groups. Children were, according to the teachers interviewed, overwhelmed by the numbers of other children and having to compete for equipment, space and teacher time. Teachers found it difficult to do one-to-one or small group work with children, were less able to provide varied learning experiences, and had to move constantly between groups of children so that their interactions with children lacked quality and continuity. Other problems associated with larger group size included excessive noise, more difficulties for quiet children, concern about accidents and frustration for children in trying to gain teacher attention. Teachers felt that their role had become mainly supervisory, that their workload had increased, that they did not have time to get to know families, and that they were constantly interrupted. Teacher morale due to the large group size as well as other changes to administrative procedures was, according to the researchers, at an all time low and teachers were described as angry and frustrated.
Smith’s (1999) study of 200 under two year-old children and staff in New Zealand childcare centres showed that smaller group size was the best predictor of positive child initiations ($\beta = -0.25$, $p = 0.002$) and total child initiations ($\beta = -0.2$, $p = 0.02$). Class size was also strongly related to the number of joint attention episodes. Centres with group sizes of 14 or less had three times the number of joint attention episodes between children and staff than occurred in groups of 26 or more. The study suggests that joint attention is an essential component of quality because it allows the teacher the chance to work in the child’s zone of proximal development, providing opportunities for extension of language, mediation of social interactions between peers, encouragement of exploration and problem-solving and support for the extension of children’s physical skills.

Boocock and Larne (1998) say that group size is a variable which is stressed more in the United States than elsewhere. Views of quality in other countries such as Japan, France, Italy and China (Howes & Marks, 1992; Rosenthal, 1999) place less stress on group size (and ratio). In New Zealand, however, small group size does seem to be generally accepted as an important component of quality (Meade, 1996; Mitchell, 1996). This is still a major issue for the kindergarten service in New Zealand where groups as large as 45 for 4 year-olds continue to operate, considerably larger group size than is recommended.

**Staff wages and working conditions**

Staff wages and conditions have emerged as a highly significant structural component of quality, with perhaps even stronger evidence than for the iron triangle, to support their importance. Staff wages and conditions are a complex variable which cannot be isolated from other variables like staff training and experience, and staff turnover. Nevertheless it is perhaps not surprising that staff wages and conditions have been identified as an important structural variable, because they are so strongly associated with staff job satisfaction (Jorde-Bloom, 1988). Staff who are satisfied with their work and being rewarded for it appropriately are likely to enjoy their work and provide a warm, sensitive, stimulating and happy environment for children and their families.

Whitebook et al. (1989) showed that teachers’ wages were the most important predictor of the provision of developmentally appropriate activities and ratios. Teachers with higher salaries worked in centres which provided better environments for children. The Cost and Quality study (Helburn, 1995) showed an independent positive effect of wages on quality (separate from staff turnover which also had an effect). The average centre wage of all teaching staff was a significant predictor of quality. The study found that the most important factors in discriminating between mediocre quality and good quality centres were average teacher wages, teaching staff education and early childhood training.

Smith’s (1996a) New Zealand study of infant child care centres and staff characteristics showed, in a stepwise regression analysis, that the best predictor of overall quality for infants (measured by the Infant Scale score on the Abbott-Shim Assessment Profile) was the highest staff salary ($\beta = 0.42$, $p=0.000$). The highest
staff salary was the second best predictor which emerged on the stepwise analysis for the Administration Scale (beta = 0.20, p = 0.0001). Total job benefits (such as sick leave, holidays, breaks, grievance procedures etc.) were also significant predictors of both quality on the Infant Scale (beta=0.21, p=0.006) and the Administration Scale (beta = 0.25, p=0.001). Total benefits of the job were the best predictor of the number of adult initiations towards children (beta=0.22, p=0.008). This study showed that the higher the overall wages and job benefits for staff, the higher the global quality (as measured by the Abbott-Shim scale) and the higher the process quality (observed interactions between children and staff).

Jorde Bloom (1993) has carried out considerable research on job satisfaction and finds that it is an accurate predictor of practices that are indicative of quality in early childhood settings. She suggests that in the United States there is considerable dissatisfaction amongst child care workers about the low pay and poor benefits they receive. The high proportion of early childhood staff leaving the profession is clearly linked to their greater opportunities for earning in other fields. Comparisons with jobs of similar complexity and responsibility indicates that early childhood work is under-rewarded. Smith et al. (1995) in interviews with 200 early childhood teachers, found that New Zealand early childhood teachers who left their work as early childhood teachers had lower job satisfaction than those who stayed, and that rankings of teacher job satisfaction were lowest in the area of salary than for 21 other possible aspects of the job. The overall job satisfaction with salary was ranked 21st out of 21 factors in a list which included other aspects like workload, job security and promotion opportunities.

Two recent U.S. studies have confirmed the importance of teacher wages as a predictor of quality (Scarr, Eisenberg & Deiter-Deckard, 1994; Phillips, Mekos, Scarr et al., 1999). Scarr et al. looked at 3 age graded classes in 40 child care centres in 3 states and found that teacher wages was the single best indicator of process quality. Phillips et al. (1999) looking at structural and process quality in 104 child care centres randomly selected from 3 states found teacher wages was more strongly associated with teacher wages than any other structural dimension of care.

Since New Zealand early childhood staff still earn considerably lower than do other education sector teachers, and since the issue of wages has been shown to have such a major impact on quality, policy makers need to give serious consideration to the issue of teacher wages in the early childhood sector.

Staff Stability

Teacher turnover is a major concern for early childhood educators internationally. Stability of teaching and caring staff is important from the perspective of children. Forming relationships with familiar and predictable adults who know you well, is an important determinant of well-being and development for children. Children’s feeling of security, safety and trust are affected when they are in an environment where there is a shifting group of staff. Children experience distress when their caregivers leave, and they have to start all over again developing a new relationship and may be reluctant to invest emotionally in another relationship which may not last. Several
studies have shown that high staff turnover rates have a negative impact on children, leading to more time aimlessly wandering and waiting and less time with peers in social activities (Whitebook, Howes & Phillips, 1989), lower levels of complexity of play with objects, peers and adults (Hayes, Palmer & Zaslow, 1990, cited by Ochiltree, 1994), poorer adjustment at school (Howes, 1988), higher levels of aggression (Howes & Hamilton, 1993) and maternal depression (Bos & Granger, 1999). Smith et al. (1995) showed that there was a relatively high turnover rate (of 29%) amongst teachers working with under two year-olds in New Zealand. Howes & Hamilton say that children use their early childhood teachers for emotional support and that these relationships are not interchangeable.

Children who lose both a teacher and a trusting relationship and get both a new teacher and a less positive relationship notice and are upset. They increase their aggression towards peers (Howes & Hamilton, 1993, p. 29).

The issue of teacher turnover is closely tied to other variables, such as wages and conditions of work. The existence of centre policies which are benign for staff, respecting their needs and investing in their ongoing professional development, are likely to lead to higher job satisfaction and greater stability of staff.

**Type of Early Childhood Education**

There is a small amount of research relating to whether different types of early childhood care lead to different outcomes. Some studies have compared centre and home-based care. Clarke-Stewart (1989), from her review of the literature, said that centre-based child care was consistently related to better outcomes (intellectual, self-confidence, independence), for children who were attending high quality centres compared to children at home or in home-based programs. A more recent review by Burchinal (1999) reports some studies showing no differences between home-based and centre-based care, but two large studies (NICHD and Clarke-Stewart’s 1992 study) which showed that better results were associated with centre care. The NICHD study showed better language and cognitive outcomes at 2 and 3 years for children in centre care compared to home-based care, after adjusting for family and other child care characteristics.

Children who experienced care in a center or preschool whether full- or part-time, demonstrated greater competence in verbal ability, cognition, social competence, co-operation with peers, and social cognition compared to those who experienced home-based care, whether with their parents, sitters or day care providers (Burchinal, 1999, p. 87).

Two other studies (cited by Burchinal, 1999), however, report better results for home-based situations. For example one study carried out in Sweden found that children in home based care were involved in more positive and competent play than in centre-based care. A Canadian study (cited by Boocock & Larner, 1998) reported more variable quality in centre care than in regulated home-based care, but showed that either type of early childhood experience had a positive impact on development. The
Canadian researchers concluded that early childhood program experience per se, rather than type of care, impacted on development.

A recent study (Hofferth, 1999) showed that children who were cared for by a relative had higher levels of behaviour problems (withdrawal and aggression) at aged 3-4 years, compared to children who were in centre-based programs. However, they also found an interaction between type of care and family income. Children from high-income families whose first nonparental caregiver was a relative had higher reading scores, but they also had more behavioural problems.

Burchinal (1999) concluded from her review that centre care may be related to slightly better cognitive outcomes, while family day care is related to slightly better social outcomes. The overall findings do give rather an inconclusive picture, however. It is most likely that quality of care rather than type is a more important influence on quality. A study by Kontos (1994) of family day care using the Harms Clifford FDCERS (the family day care version of their quality scale), showed that children’s developmental outcomes varied according to the quality of family day care and family characteristics, in a similar way as has been found for centre based care. The effects of family background and family day care quality on children’s development were additive.

Smith et al. (1995) showed that there were significant differences in quality depending on auspices - either private, community or institution/employment-based (e.g. tertiary institution or company) care. The study showed a consistent patterns of results on the Abbott-Shim Assessment Profile (a measure of quality), with Employment based centres, scoring the highest, followed by community centres, with private centres having the lowest scores. Community centres were not superior to private centres on all sub scale scores, but employment based centres consistently had the highest scores. The authors argued that this is due to subsidies from employers in the form of buildings, equipment or other funding support.

The Competent Child study looked at the effect of type of early childhood program on developmental outcomes. Type of centre only predicted 3% of the variance on PAT Reading and Mathematics scores at age 8 (Wylie, Thompson & Lythe, 1999). Children attending community child care centres or playcentres had the highest scores reading scores, children in family day care, kindergarten or private centres were in the middle range, while children in A’oga Amata had the lowest performance. A significantly larger proportion of the variance was accounted for by the socioeconomic mix of children attending centres, with this accounting for 7.2% of the variance in reading and 11.3% of the variance in maths. The socioeconomic composition of the group of children is therefore far more important than the type of centre in predicting academic outcomes. The study also suggested that quality processes were more important than type of early childhood centre, with staff responsiveness predicting 6.2% of the variance in reading scores and 4.3% of maths scores, while amount of early childhood staff-child interaction predicted 5.4% of the variance in reading.

**Process Quality**
This consists of the general environment and social relationships and interactions taking place in the early childhood setting which are directly experienced by children and families. Process quality involves the measurement of the actual education and care received by children. In American studies, process quality is often measured with such scales as the ECERS or ITERS. Lamb (1998) quotes research which shows that these measures are less useful in Western Europe than in the States. For example its use in a Swedish study was abandoned because all centres achieved near perfect scores! Lamb gives a useful summary of the relationship between structural and process quality.

Structural characteristics affect the likelihood of high-quality care, but they do not guarantee it: centers that are characterized by good adult-child ratios and are staffed by well trained providers may still provide care of poor quality. Extensive training, education and experience, like generous adult-child ratios, have to be translated into sensitive patterns of interaction, displays of appropriate emotion, and the intuitive understanding of children that make the experiences richly rewarding for children (Lamb, 1998, p. 75).

There is widespread agreement amongst researchers (Kontos & Wilcox-Herzog, 1997; Lamb, 1998; Meade & Kerslake Hendricks, 1999; Rosenthal, 1994) that process quality is the most important component of quality. Ideals of process quality can be informed by theories and general empirical knowledge and can focus on the most relevant aspects of children’s ecological context. Sociocultural theory suggests one way of viewing processes in early childhood education. Development is thought to occur through the child's activities in the context of social interactions and relationships (Fleer, 1992; Smith, 1996c). Hence children's development is profoundly affected by other people, culture and the tools of culture (especially language), institutions and history. Children gradually come to know and understand the world through their own activities in communication with others. A continual process of learning generates development. The greater the richness of the activities and interactions that children participate in, the greater will be their understanding and knowledge. This is not just a one way process from adult to child, but a reciprocal partnership where adults and children jointly construct understanding and knowledge. The sociocultural system within which children learn is the most important aspect of quality in early childhood settings. Children participate in cultural activities with skilled partners and come to internalise the tools for thinking they have practised in social situations. Hence the relationship and interactions between adults and children and between children and children in early childhood settings are the key component of the construct known as quality. If children are to acquire knowledge about their world it is crucial that they engage in shared experience of relevant scripts, events and objects with adults.

Children, even very young children, are active co-constructors of their own knowledge and understanding, rather than passive recipients of environmental events. Children also provide unique individual differences arising from their own cultural and biological origins, which influence the way in which they participate in early childhood settings. Process quality has been defined as:
A well-articulated program of good care, developmentally appropriate activities for children, nurturing staff members who interact with children to promote their emotional security and development, and a physical environment which provides adequate stimulation and opportunities for a wide variety of activities (Helburn et al., 1995, p. 26).

While there has been some argument against and disagreement with the term “developmentally appropriate” practice (Smith, 1996c; Singer, 1996) the idea that teachers interact with children sensitively and build on their existing competencies and skills is widely accepted as a component of quality. The following are some of the main components of process quality which have been shown by research to affect outcomes for children:-

- Sensitive and responsive interactions and relationships between staff and children;
- Curriculum, program planning (and an emphasis on children learning, not just adequate custodial care) and adult collegial relationships;
- Peer group harmony;
- Communication with and sensitivity to parents/whanau.

**Staff-Child Interactions and Relationships**

Cryer (1999) describes process quality as characterised by a “child-centred” approach to raising children where there is an emphasis on play and interactions with materials and peers as a way of encouraging children’s development. The adult’s role is to facilitate children’s play, provide protection, positive attention, and access to information, resources, support and guidance. Cryer reviews several studies, which support her description of process quality being related to developmental outcomes, including the National Child care Staffing study, the Cost and Quality study and the NICHD study. “How teachers interact with children is at the very heart of early childhood education”, according to Kontos & Wilcox-Herzog (1997).

Kontos & Wilcox-Herzog (1997) review the literature on teachers’ interactions with children and conclude that quality in early childhood programs is largely to be found in the interactions between adults and children. Teacher sensitivity indicates that teachers are quick to comfort children, respond to their initiations readily, know them well enough to interpret their behaviour and competencies and are able to build on them and work in children’s zone of proximal development. Sensitive teachers also do not employ punitive or controlling methods of interaction or remain detached from children.

The Competent Child study (Wylie & Thompson, 1998; Wylie et al., 1999) provides ample evidence in a New Zealand context that staff-child interactions and staff responsiveness in early childhood centres are predictive of academic (maths and reading) outcomes at school when children are 8. Children who attended early childhood services scoring above the median on staff/child interaction scored higher.
on Mathematics by 8-10 percentage points, and better on literacy measures and social skills with peers. The staff-child interaction quality rating score remained associated with Mathematics and Literacy after taking into account family income (but the association with social skills disappeared). Regression analyses showed that two of the most important factors to predict overall child competencies were “staff guide children in centre activities” and “staff model and encourage redirection, positive reinforcement” (Wylie et al., 1999, p. 106).

The teacher has to distribute attention and involvement amongst a group of children, and to shift role, for example from monitoring to being a play partner. In mediocre centres children experience dangerously high levels of ignoring. The frequency of interaction between teachers and children is important. While children may be near a teacher, they are not necessarily interacting with them. Kontos & Wilcox-Herzog found in one study that even when a child is close to a teacher, the teacher only interacts with the child 18% of the time on average. However teachers need to divide their attention between children and the same study showed that teachers were interacting with children 71% of the time. Smith et al. (1995) showed in their study of 200 under two year-olds in New Zealand child care centres that children were close to the teacher on average in 41% of intervals but that they were involved in joint activities with the teacher for only 3% of the observation time (2 hours).

The average amount of attention received by a group of children, however, does not indicate the amount of attention received by individual children. It appears that some children, especially those who are perceived as a problem or as special in some way, receive much more attention. The problem of children who do not stand out not receiving sufficient attention is worrying. One study (Waterhouse, 1995) which looked at teachers knowledge of individual children’s identity, reported that many children came into the categories of “average” children who became virtually invisible to teachers, or were at least on the margins of teacher attention. Such research suggests that teachers need to be very conscious of how they distribute their attention across a group of children, so that individuals are not sidelined.

When teachers are closely involved and interacting often with children they are likely to have a close relationship with them. Establishing and strengthening social networks of relationships between children and adults is one important aspect of early childhood education, according to Dahlberg (1999). Developing relationships is important to establish intersubjectivity, which allows the teacher to judge how much the child already knows and understands, so that she can provide appropriate scaffolding to extend development.

A crucial component of process quality is children’s attachment to their teachers, and this is particularly essential for infants. Secure attachments to teachers provide children with a safe base from which to explore the environment and become competent in peer relationships (Howes & Hamilton, 1993). Children are more emotionally secure when they have a trusting relationship with their teachers. Children tend to get attached to teachers who are more involved with them, who respond to their social bids, and who are sensitive to their needs. Elicker and Fortner-Wood (1995) describe a vignette where a teacher watches a 3 year-old child’s facial
expressions, interprets that the child is feeling a mixture of interest and anxiety, and uses this understanding to successfully encourage the child gently into a new task. 

Relationships are described as being more than just social exchanges, but involving a shared history, mutual goals and expectations, and the joint experience of emotions, thoughts and special meanings.

There have been a number of studies which suggest that infants form stable secure and insecure attachments with teachers, in a similar way to the formation of attachments with parents, and that children’s attachments to their parents are independent of attachments to teachers (Elicker & Fortner-Wood, 1995; Goosens & van IJzendoorn, 1990; Howes & Hamilton, 1992a, 1992b). Howes & Hamilton (1992a) reported in one study that 73% of an infant group’s attachments with teachers were secure while 76% of attachments with their mothers were secure. In later research, however, they report that less than half of children in typical child care settings do become securely attached to their teachers (in contrast to the estimated two thirds or more of children who are securely attached to their parents) (Howes, Galinsky, & Kontos, 1998). 

Children’s attachment relationships with their teachers predict their social competence with peers and later socioemotional development (Howes & Hamilton, 1993). The child’s first teacher relationship is more powerful than later ones in predicting social competence. Hence the relationships that children have with their first early childhood teachers children are very influential. Policies which encourage the use of primary caregivers for infants in early childhood centres, receive considerable support from this literature. One model early childhood program (Kellogg, 1999) which puts into practice these principles, places children in small clusters of from 2 to 6 children, when they enter child care as infants, toddlers or preschoolers. This small cluster stays together with the same teacher throughout their years at the centre until they leave for kindergarten. Not only does this allow relationships to develop between the teacher and the children, but the children come to know each other well and form close relationships.

It is possible to train staff to be more sensitive and to encourage secure attachments with children (Howes & Galinsky, 1998). A modest intervention of up to 20 hours of training (for both family day care caregivers and centre caregivers) was successful in changing the attachment profiles of children and the sensitivity of caregiving. While child care caregivers may not have the same emotional investment in children as parents, if they learn the importance of being involved and sensitive with children, children are as likely to be attached to them as they are to parents.

Elicker and Fortner-Wood (1995)’s review provides ample evidence of the importance of warm and nurturing relationships between teachers and children well beyond infancy. They cite studies in kindergarten and first grade showing that better school adjustment, improved children’s competence, more positive behavioural outcomes and less chance of being retained in grade are all associated with positive teacher-child relationships. Children whose relationships with their teachers are conflictual or angry are more likely to display behavioural problems, poor work habits and difficulties in relating to peers. Having a positive relationship with a teacher can serve as a buffer for at risk children on entry into school, and help them make better progress.
A study by Smith (1999) emphasises the importance of joint attention as an aspect of process quality. Joint attention is the way that children, through their interactions with adults, come to grasp that experience is shared and to “know other minds” (Bruner, 1995). Children’s ability to handle intersubjective encounters depends on reciprocal interactions with more competent members of the culture, and with adults encouraging children’s agency. Joint involvement or attention is where two individuals pay joint attention to or act on some external topic. Such episodes may be very brief or quite extended. Joint attention episodes allow information to be conveyed, relationships between individuals to be established and scaffold developing language and social skills. Smith analysed running records of 200 under two year-olds from 100 New Zealand child care centres. Joint attention records were coded from the records. The results showed that a worryingly high proportion of children (35%) were involved in no joint attention episodes during the observation period, but two thirds of the children had one or more such episodes. The study showed that joint attention episodes were spread over many different activities in the child care centre, with object/toy play eliciting the most joint attention (20%), caregiving (14%), books (13%), messy play (13%), and large motor activity (12%). The study suggested a somewhat lower level of joint attention in New Zealand early childhood centres than is desirable. Meade and Kerslake Hendricks (1999) have incorporated the idea of joint attention as an important component of quality in their proposed system for the development of quality process indicators.

Singer (1996) advocates staff involving children in their adult work as a basic pedagogic principle in early childhood centres. She believes that children take their activities much more seriously if they are involved in the achievement of a shared goal. For example adults can involve other children in taking care of babies, comforting another child, preparing meals, going to buy some milk or groceries, or making something. Allowing children to participate in real work fosters their confidence and competence. Singer cites the practice in Reggio Emilia centres in Italy where real artists and people from outside the early childhood centre come and work with children. This quotation from the Reggio Emilia philosopher, Loris Malazuzzi (cited by Dahlberg et al., 1999, p. 76) underlines this point.

The wider the range of possibilities we offer children, the more intense will be their motivations and the richer their experiences.... Children are autonomously capable of making meaning from experiences - the adults’ role is to activate the meaning-making competencies of children.

Curriculum

A curriculum model is a very important component of process quality. A curriculum should provide a theoretical basis, goals and philosophies for early childhood practice. It is the source of principles to guide practice and professional development and encourages healthy debate and reflection on these principles and practices. A curriculum model promotes a shared understanding and language in early childhood, and provides a framework through which assessment is carried out. Without a thorough grounding in curriculum theory, early childhood teachers lack a perspective...
to develop and evaluate their programs and make active decisions. According to Epstein, Schweinhart and McAdoo (1996):

A curriculum model is essentially a set of educational practices that is recommended from a specific theoretical viewpoint. The fact that there are various curriculum models mean that different staff trainers recommend different sets of practices. (p. 13)

The early childhood curriculum within New Zealand is probably unique, because its development involved extensive consultation with a diverse group of practitioners, with Māori perspectives being a separate but integrally related framework. On the international scene, national early childhood curriculum models are relatively unusual. The development of Te Whāriki (Ministry of Education, 1996) has allowed a consensus to form around acceptable practice. The metaphor of the woven mat (Te Whāriki) views curriculum development as weaving, providing a framework, but allowing each early childhood sector to weave its own distinct pattern (Carr & May, 1994). The curriculum, in contrast to other models such as in the United Kingdom, has therefore emerged not as a top down prescription by experts, but as a bottom up open-ended set of consensually accepted principles. The implementation of a bicultural perspective and an anti-racist approach along with respectful, reciprocal relationships with Māori, has been an important aspect of the success of Te Whāriki’s vision (Ritchie, 1996). According to Carr & May (1994, p. 33), during consultations practitioners were saying ‘This is us, this is what we do, this belongs to us.’ In essence Te Whāriki is a statement which incorporates New Zealand ideals of quality for the early childhood sector. It is backed up by the Government’s Statement of Desirable Objectives and Practices (DOPs) for early childhood services (Ministry of Education, 1998) which gives useful guidelines to the implementation of quality practices in New Zealand.

Nevertheless the theoretical framework of Te Whāriki (and of DOPS) arises out of Vygotskian sociocultural theory. The curriculum is conceived of as communicative interactions amongst teachers and students. Carr believes that the early childhood curriculum is “a cultural site whose social reality is constructed by, and in turn constructs, the communicative interactions amongst teachers and students” (Carr, 1996, p. 9). The emphasis is on encouraging an orientation towards learning which can lead to an ongoing disposition to learn and persevere with difficulties rather than giving up. Instead of being oriented towards instilling specific skills in children, Te Whāriki encourages children’s autonomy, exploration, commitment and aspirations. Carr and her colleagues have developed an assessment model involving “learning stories” and “teaching stories” which are based on this curriculum model (Carr, 1998a, 1998b, 1999; Podmore, May & Mara, 1998).

The five main components of Te Whāriki are:

The literature on learning has provided considerable evidence that the context is crucial, that developmental trajectories are not universal, and that we need to go beyond the idea that teaching in early childhood is the teaching of fragmented skills and knowledge (Carr, 1998b, p. 323).
- a safe and trustworthy environment
- meaningful and interesting problems
- avoidance of competition and risk of failure
- opportunities for collaborative problem-solving
- availability of assistance (Carr, 1996).

Five questions have been developed from a child’s perspective, each of which can be linked to a strand of Te Whāriki, and which provide learning and teaching challenges for each centre. This model of teaching and learning stories have been trialled in seven case study centres (Podmore et al., 1998). These questions form the basis for the new assessment model.

- How do you appreciate and understand my interests and abilities and those of my family? (Belonging)
- How do you meet my daily needs with care and sensitive consideration? (Wellbeing)
- How do you engage my mind, offer challenges and extend my world? (Exploration)
- How do you invite me to listen and communicate, and respond to my own particular efforts? (Communication)
- How do you encourage and facilitate my endeavours to be part of the wider group? (Contribution) (Podmore et al., 1998).

Within New Zealand and elsewhere (Carr, 1998b; Dahlberg et al., 1999; Morss, 1996; Smith, 1996c; Singer, 1996) the idea of “developmentally appropriate practice” has been looked at critically because of its implication that the curriculum should be based on normative age and stage-based developmental theory, where activities and experiences are arranged for children based on what they are expected to be capable of at different ages. Developmentally-appropriate practice incorporates the idea of child-centered natural development “in an environment which encourages children to discover the world spontaneously by self-directed playing within a stimulating environment” (Singer, 1996, p. 32). Singer criticises this focus on child directedness as sentencing the child to a separate world without participating adults. The teacher, according to Singer, becomes an “observing outsider” concerned with regulating the child’s spontaneity and lacking in togetherness and shared interests.

In a more Vygotskian model, teachers take an active role and engage in joint activities with children. Children are expected to learn to the extent that they are given opportunities to participate in problem-solving with more skilled partners. Development is seen as culturally determined rather than determined by nature. The central idea is that children co-operating with adults or other children, are more capable of doing things when they work collaboratively. Teachers within a Vygotskian framework do not just follow the development of children, but adopt socially valued goals (Carr, 1996; Singer, 1996). Children are expected to learn according to the
opportunities they are given to participate. Teachers do not simply transmit knowledge to passively receiving children, but they share meanings and understandings, and children take an active and inventive role.

To what extent is research supportive of the curriculum orientation which has been adopted in New Zealand? The previous section concerning the nature of adult-child interactions has some bearing on the New Zealand curriculum model. It supports the importance of engagement with teachers and warm and close relationships between children and staff. Other studies support the curriculum being embedded in everyday activities, with children being given challenges and encouragement to learn for themselves and by helping others (Howes & Droege, 1993; Greenberg, 1992). Howes & Droege reviewed research showing that children learn much more through playing with teachers than they do through formal academic instruction. Their paper shows that children in child-centered classrooms have higher perceptions of ability, more motivation, more positive feelings, interest and autonomy in school activities, compared to children in coercive and critical classrooms.

Nevertheless it is only in the most general sense that the New Zealand curriculum model has been tested. There is not a great deal of research which has directly compared curriculum models, where other aspects of the early childhood environment (such as ratios, and teacher education) are the same, but only curriculum has been systematically been varied. The most extensively researched curriculum has been the High/Scope Curriculum, developed by David Weikart and his colleagues in Ypsalanti (Michigan), for the Perry Preschool Project (see earlier sections). The curriculum evaluation project began in 1997 to compare the effects of three preschool curriculum models on the development of young children from poor families (Schweinhart & Weikart, 1997). The three curriculum models compared were the High Scope model, Direct Instruction and traditional Nursery Education. Three and four year-old children were randomly assigned to one of these three groups, and had 2 and a half hour classes each day for five days a week, and their parents received bi-weekly home visits, for a year. The hours of operation, staff-child ratio and resources for the three groups were the same. The three models differed according to whether children and teacher were primarily initiators or respondents in social exchanges, with the Direct Instruction model (DISTAR) focusing on teacher initiation and child response. Teachers taught children in precisely orchestrated question and answer sessions in language, mathematics and reading - workbooks were the only materials used in the classroom. The Nursery School curriculum represented a child-centered approach, with children having the freedom to choose activities, move from one activity to another and interact with adults and peers. The emphasis was on social rather than intellectual skills. The early childhood curriculum was focused on activities chosen by the children, themes such as circuses or holidays, and field trips.

The High/Scope Curriculum was based on Piaget’s constructivist theory of child development, viewing children as active learners who plan, carry out and reflect on their activities (Epstein et al., 1996). Children make choices about what they will do, carry out their own ideas, and then reflect on their activities with adults and peers. They engage in small and large group activities, assist with cleanup and play outside.
A set of key experiences provide a conceptual framework for staff to plan activities, observe children and assess effectiveness.

Children were followed up annually. Overall the average IQ of the three groups rose by 27 points the first year after their entry into the three programs. At the end of the preschool program the Direct Instruction group had a slightly higher IQ. The three groups differed little from one another on a variety of tests used in the various follow-ups through to age 10. At that stage it looked as if all three models had a similar effect on children’s intellectual and academic performance. But at the age 15 follow-up the measurement of outcomes was expanded beyond intellectual and academic tests, to include antisocial acts and participation in employment. The Direct Instruction group were shown to be have been involved in 2 and a half times more antisocial acts than the High Scope group. The Direct Instruction group had fewer members appointed to a school job or position than the Nursery group, and fewer of the Direct Instruction group participated in sport or were well thought of by their families.

The most recent report of the groups at age 23 indicates that the High/Scope and Nursery groups have advantages over the Direct Instruction group in many ways (17 variables) (Schweinhart & Weikart, 1997). The participants in the two more child-centred curricula had fewer felony arrests, fewer years of special education and were more involved in volunteer work, more likely to be living with a spouse, and less likely to be suspended from work. The Direct Instruction group had a significantly larger number of people who irritated them. There was very little difference between the High/Scope and Nursery groups at age 23 - the High/Scope participants had lower scores on acts of misconduct, but the Nursery group had fewer years of special education and higher earnings. The study concluded that programs where children initiate their own learning activities are superior to teacher-directed instruction, and that the latter may risk negative effects on social outcomes.

A review of the literature (Phillips & Stipek, 1993) suggests that Schweinhart and Weikart’s findings are supported in the wider literature. The authors conclude from their review that there is evidence to suggest that highly didactic teacher-directed curricula have negative effects on children’s social, emotional and emotional development. There is also no evidence to show that teacher-directed programs produce any better results in terms of long-term achievement. Highly structured curricula are stressful rather than supportive, and children’s enjoyment of and confidence at school is fostered by more child-centred programs.

Sylva (1997) is critical of the couching of the whole High/Scope curriculum in Piagetian terms, and argues that despite its historical origins within a Piagetian framework, it is actually a Vygotskian curriculum embodying the principles of scaffolding, mediated learning, and cultural transmission. She says that the plan-do-review sequence is particularly congruent with a Vygotskian model of the expert “scaffolding” the novice’s behaviour. The way in which adults guide learning through language work in small group time, use children’s zone of proximal development, according to Sylva, to extend children’s thought.
Those who develop High/Scope may describe it in any way that they wish... but those who wish to understand the reasons for its impact may profit from other theorists who provide a reasoned account of cognitive development within culture. As a matter of fact, adding a Vygotskian slant to the High/Scope curriculum may lead to enhanced practices as the curriculum continues to evolve all over the world (Sylva, 1997, p. 93).

The results of the curriculum comparison study appear, therefore, to support New Zealand theoretical and curriculum model. That our model has been embraced with enthusiasm overseas especially in the United Kingdom, is a further indication that the model is a useful framework which can be practiced in diverse settings and using a variety of different approaches (Early Childhood Education Forum, *Quality in Diversity*, 1998). What seems to be an urgent need for future early childhood research is to determine the extent to which our curriculum model is actually being put into practice. ERO reports and Smith’s research (Smith, 1996a, 1999) suggest that we have no reason to be complacent about process quality in New Zealand centres. Getting an appropriate theoretical, curriculum and assessment model in place is a first step, while actually making sure that it is being practised is another one.

One component of process quality which is related to curriculum implementation in early childhood centres, but which does not seem to have evoked much research, is the issue of the degree of consensus amongst staff about programs and philosophy. One New Zealand study was based on concerns about staff roles and collegial relationship, and how these influenced the quality of the program. Smith et al. (1992) carried out interviews with 12 kindergarten teachers over a period of 8 months before, during and after a new teacher joined their staff. The study suggested that leadership style was an important issue, especially during a process of staff change. Successful kindergartens were identified as those where no staff left and teachers said they got on well, whereas in unsuccessful kindergartens one or more staff members left because they were unhappy with staff relationships. The study suggested that goal consensus and power sharing were important components of happier kindergartens. When kindergartens involved all staff and spent time on developing philosophical agreement and clarifying roles, there was little conflict and unhappiness. Successful kindergartens worked through consensus and negotiation while unsuccessful kindergartens worked through the authority of the head teacher and the majority view. More recent research (Smith et al., 1995) confirms the importance of leadership style in relation to process quality and suggests that this area needs to be looked at further.

**Peer group harmony**

The extent to which children engage in positive social interactions, enjoy friendships and work collaboratively in pairs or groups, has not been given a great deal of emphasis in discussion on process quality, although peer behaviour has often been used as an outcome measure (Lamb, 1998, pp. 99-101) in studies of quality. It is interesting to note that global measures of quality such as the ECERs scale (Lamb 1998, p. 88) do not contain categories of observations for harmonious peer interactions. Peer interactions of higher quality have been associated with high quality care in one large U.S. study (Howes, Smith & Galinsky, 1995, cited by Lamb, 1998,
Yet *Te Whāriki* emphasises the importance of children experiencing an environment where they are encouraged to learn with and alongside others and where there are equitable opportunities for learning. Collaborative activities with other children are believed to play an important role in development. Giving children the opportunity to develop friendships and negotiation skills, and helping them to see other people’s point of view, share and take turns, are all described as important learning outcomes. Children’s language, social and cognitive development is highly dependent on the opportunity to engage in friendships, play (especially pretend play) and collaborative activity with peers or siblings (J. Dunn, 1993; Pellegrini & Galda, 1993; Vedeler, 1997). The opportunity to “know other minds” is extended greatly through peer interactions.

While research emphasis has been placed on teacher child interactions and relationships, not so much has been given to peer interactions and relationships. Children themselves see their relationships with peers as one of the most salient aspects of their experience in early childhood settings (Corsaro, 1988; Gallaway, 1999; Langsted, 1994). They frequently mention their peers as a source of either satisfaction or dissatisfaction with their early childhood centre. In one recent Dunedin study Gallaway (1999) interviewed 28 four year-old kindergarten children during the course of their day about kindergarten life. Most of the children (25) were happy with kindergarten and about half of this group said that having friends and playing with friends was the reason that they liked kindergarten. All of the three children who did not like kindergarten said that this was because of other children “being mean” or teasing them. The interview asked the 25 children who did like kindergarten if there was anything that they did not like about kindergarten. Twenty one of the 25 children said that what they did not like was being hurt by other children (punched, whacked, hit, kicked and scratched).

Caregiver-child relationships have tended to overshadow the importance of peer relationships (Singer, 1996). Teachers frequently aim their interventions at individual children, offering help instead of encouraging children to work together at solving problems. The result is that children can become dependent on teachers and teachers are placed at the centre of children’s lives. Peer harmony is important for many things such as sharing humour, comforting another in distress, resolving conflict, and developing empathy. Adults are to a certain extent outsiders in the peer culture, according to Singer. They can participate in children’s activities, but if they do so they have to recognise children’s reality, abide by their rules and “be a guest on their territory” (Singer, 1996, p. 37).

The organisation and purpose of early childhood centres can have a major effect on the stability and harmony of the peer group environment, and on children’s well-being. For example when children are left at shoppers’ creches or other short-term casual type early childhood centres, they are not able to be together consistently with a familiar group of peers. Alderson (in press) cites a study comparing early childhood classrooms where children were very distressed about leaving their parents, and ones
where they are much happier. Children were more distressed when they were with different groups of children every time they attended. In centres where children attended regular sessions, got to know the routines, and enjoyed close continuing contact and friendship with other children, the children were much happier.

On the other hand, it is a mistake to think that peer harmony amongst young children, automatically develops without sensitive adult intervention. Adults play an important role in mediating peer activities and helping children acquire successful strategies for harmonious interaction. Smith and Barraclough (1999) showed that early childhood teachers have an important role in managing children’s peer conflicts and scaffolding children’s developing social skills in resolving conflicts. In a study of 30 early childhood teachers, it was found that teachers had a high level of awareness of how peer interactions were proceeding, and were very sensitive to allowing children to use their existing skills to resolve conflicts, but providing assistance where it was needed. The study also analysed observations of the conflicts of 200 under two-year olds in child care centres, and showed that adult intervention was the outcome in 46% of all conflicts.

It is therefore important to include the issue of interactions and relationships between peers as a central one in defining process quality. Meade & Kerslake Hendrick’s quality assessment instrument does include categories of observation which look at peer interactions, hence usefully reflecting a broad definition of quality and one which meshes well with the goals of Te Whāriki.

**Communication with and sensitivity to parents/whanau**

One of the most important aspects of process quality is relationships and communications between early childhood staff and parents. One component of high quality early childhood education is that staff accept and understand parental values, and can integrate parent’s knowledge and perspective with the professional expertise of staff (Holloway & Fuller, 1999). An ecological model (see Figure 1) emphasises that children move between two worlds of home and early childhood centres, and that warm, reciprocal and balanced relationships between home and centre, have a positive impact on children’s development. From the child’s point of view, the early childhood setting is likely to be a bewildering and alien place if there are no connections between it and the world of home. From the parents’ point of view, they should feel a sense of acceptance and belonging, within the early childhood setting. Parents need to feel that their culture and values are accepted and compatible with centre programs and practices. A frequent misconception about extrafamilial care is that it is a substitute for home care, whereas in reality early childhood education is a supplement and support for the care and education received by children in their families (Scarr & Eisenberg, 1993). Hence the relationship between the two microsystems of home and centre needs to be a positive one. This means that a “‘one size fits all’ model of working with parents needs to give way to a flexible approach and a mutually-supportive interpersonal relationship between parents and staff (Powell, 1997, p. 10). According to Dalli (1997, p. 23), “Early childhood centres need an approach to parent-centre relationships that is responsive to the messages that parents themselves give about how they want to be supported.”
Dalli (1997) argues that early childhood centres have an important role in supporting parents, and that this role needs to be better acknowledged and recognised as not conflicting with staff responsibility towards children. She advocates careful attention being given to such issues as the nature of initial meetings with parents. Parents should not be left alone to work out the rules for themselves, for example. The intensity of the emotional experience involved in having a child start child care from a parent’s point of view needs to be recognised and catered for sensitively, by staff. Information sharing about the centre’s program and about the child’s progress is also important.

Dalli’s study (1999) showed that learning to work out the rules of a centre was an important process for parents, which was given varying degrees of emphasis in different centres. Parents took their cues from staff, and were happier if they were given clear expectations of their behaviour during their child’s settling in. Dominant societal discourses about motherhood and early childhood teaching could be discerned in the relationships between mothers and teachers. In two case studies, teachers felt strongly that the mother was a very important figure in the child’s life, and provided constant communication and feedback to the mother during this child’s settling in, which resulted in the development of a trusting relationship between mothers and teachers. In two other case studies, teachers took a hands off, laissez-faire approach to introducing child and mother to the centre, and mothers were left unsure, unsupported and dissatisfied.

Holloway and Fuller (1999) contrast what they refer to as a “family-oriented” and an “early childhood” position towards the relationships of families and early childhood centres. The family oriented position emphasises parents as the main child-rearing agents, assuming that they have their own goals and strategies for bringing up their children, and that they have a legitimate desire to ensure that the institutions where they place their children have compatible beliefs and practices to their own. The family oriented perspective suggests that a partnership between parents and staff is likely to provide the most effective context in which children can flourish, and that early childhood staff should seek to extend and complement the basic goals and strategies of parents. The early childhood position, on the other hand, emphasises early childhood settings as the main force in socializing children and that early childhood professionals have differing perspectives from parents. In this model early childhood staff operate from a perspective where parents are seen primarily as the recipients of useful information about how to interact with children, and that planning early childhood settings should be based on research on universal developmental sequences which apply to all children. Early childhood institutions are seen in this perspective as capable of compensating for parenting deficiencies. The authors (Holloway & Fuller, 1999, p. 111) make the important point that “while other caregivers come and go (often with alarming frequency), parents alone have a lifelong connection to their children”. It is therefore important that parents are empowered by their child’s participation in early childhood education, and that early childhood staff understand and respect their values and perspectives. A later section of this report gives more attention to the issue of relationships between families and early childhood services, and to the effect of participation in early childhood services on families.
Messages from Research

General Quality Effects

- The quality of early childhood education, broadly defined, has an effect on children’s emotional, social, physical and cognitive development
- The positive impact of high quality care is strongest for children who would otherwise experience an unstimulating and unresponsive environment at home
- The quality of children’s early childhood education is not independent of family background. Families with low risk backgrounds tend to use higher quality care and families with high risk backgrounds tend to use lower quality care.
- Recent US research suggests that the quality of family child care is a stronger predictor of developmental outcomes than the quality of non maternal child care, but that a combination of low quality care both within and outside the family produces the most negative outcomes

Structural Quality

- Staff-child ratios, staff training and group size have been shown in international research and in New Zealand to be associated with high quality care and more favourable child development outcomes
- Staff wages are a very strong predictor of high quality care - at least as powerful as ratios/group size/ training
- High teacher turnover is associated with poorer outcomes and lower quality care
- Structural indicators of quality are a necessary but not sufficient condition for quality

Process Quality

- The most important indicator of quality is the social interactions and direct experiences of children in their early childhood education setting - namely process quality
- The quantity of interaction which children have with their teachers and the amount of attention they receive is one important aspect of process quality - children who interact little with teachers are less likely to profit from their experience in early childhood education setting
- The quality of teacher/child relationships is an important indicator of quality - children can have stable secure or insecure attachments with their teachers which are independent from their attachments to their parents. Secure attachments are predictive of later social competence.
- Joint attention episodes, where adult and child are jointly engaged in attention to outside events, actions or objects, are an important indicator of process quality
- The research supports curriculum models like New Zealand’s Te Whāriki, where children are encouraged to initiate, participate in meaningful activities, and
explore, and teachers scaffold their developing skills. Highly structured and teacher-directed curriculum models have been associated with poorer long-term outcomes, especially in social behaviour.

- Positive and harmonious peer interactions are associated with high quality care whereas aggression and non-compliance between peers are associated with poor quality care. Little attention has been directed towards positive peer interactions as an indicator of quality (compared to teacher-child interactions).

- Support and sensitivity towards parents, clear communication and information sharing are likely to lead to trusting relationships between early childhood staff and parents.

**Future Research**

It is important to develop indicators of quality that are based on international research and New Zealand values about quality. The Quality Indicators currently being developed are a useful move in this direction (Meade & Kerslake Hendricks, 1999). These indicators need to be trialled extensively within centres throughout New Zealand and looked at in relation to other quality measures. If the indicators can be developed into a valid and reliable research instrument, there are a number of important studies which should be carried out relating process quality to different independent variables, such as:

- type of centre
- structural variables
- funding regimes
- regulatory policies
- training
- cultural background of centre and families

One of the problems with previous research is that many of the methods do not provide a sufficiently detailed examination of context to determine which components of it are likely to be the most effective in producing meaningful outcomes. Aspects of context such as teacher, parent and child roles, relationships and activities in classrooms, need to be explored in much more depth. For instance how do the use of space, classroom organisation, teacher feedback, approaches to discipline and control, constraints and options in shared or individual activities, encouragement for children to take risks and explore possibilities, affect the disposition to learn? How does an early childhood program work as a collaborative learning environment and how does it encourage the transfer of knowledge from one context to another? Such research will require the detailed examination of the discourse of the early childhood learning environment and collection of detailed transcripts of exchanges between children and teachers, and between peers. We already know the broad variables which comprise quality (for example early childhood training), but we know too little about the details of how these influence learning.
Since training is such an important structural variable relating to quality, it is important to examine the components and processes which are involved in producing an effective early childhood practitioner. There are now a considerable number of early childhood training providers in New Zealand, yet little is known (except on paper) of how these training programs balance practice and theory, the content of their curriculum, or the duration, intensity and nature of the learning environments provided. The outcomes of different kinds of teacher education program in terms of teacher competency, where they are employed, how stable their employment history is needs investigation.

In our view it is time to design an intervention study which provides low income children with experiences in high quality early childhood education care settings at a very low cost to these parents. Since low income families currently have poor access usually for financial reasons, a scheme like the Targeted Individual Entitlement scheme, could provide full funding for low income families to pay for their child’s participation in high quality early childhood education. A careful systematic evaluation of such intervention programs will establish if they are effective in protecting children and families from risk, what the most effective methods of working in partnership with parents are, and what the duration and intensity of such programs should be. It is important that such programs do not operate from a deficit model but provide support and encourage for the involvement of parents depending on their individual circumstances. Access to a program catering for a group of children from a mixed socioeconomic status background is also likely to be most effective.

There is little New Zealand research looking at how bicultural programs influence children’s cultural and language knowledge, and attitudes towards ethnic differences. While biculturalism and cultural sensitivity is a strong New Zealand value for early childhood education, the processes and outcomes related to this aspect of quality should be looked at both qualitatively and quantitatively.

Finally, one of New Zealand’s most important policy innovations has been the introduction of *Te Whāriki*. While there is research supporting the strength of this type of curriculum model internationally, there needs to be more information about the actual implementation of *Te Whāriki* in a variety of typical New Zealand early childhood centres. Further work using the approach of Carr, May, Meade and Podmore (1999) is required. The action-research model using self assessment is a particularly effective one for policy formulation and professional development. Longitudinal projects following through the implementation of *Te Whāriki* in a variety of types of centre will also enable the refinement of evaluation tools and a better understanding of the support needed by centres in delivering *Te Whāriki* effectively.
Chapter 6

The Effects on Families of Participation in Early Childhood Education

This section of the literature review examines the effects of families’ participation in early childhood education and intervention programs. Historically, one of the primary goals and central philosophy of early childhood programs world-wide have been to foster the education and development of young children. The literature available on outcomes of early childhood programs has tended to concentrate on the direct effects for the development of children, and the implications for participation of parents and other family members have been given less attention. The current literature on the efficacy of programs, the design of effective early childhood programs, and the outcomes of early childhood for family functioning indicate that the current trend in early childhood is to provide a comprehensive approach that encompasses the needs of children and their families (Powell, 1996). In keeping with the ecological, theoretical orientation of this review (Bronfenbrenner, 1979), the implications of participation in early childhood programs for families from the perspective of economic benefits and the amelioration of risk, and the implications for the psychological well-being of family members will be explored. In effect, the literature examined encompasses issues for families that are relevant to the various components of the ecological model, namely the microsystem (family roles and relationships; parent, child, and caregiver relationships), the mesosystem (family relationships with service providers), the exosystem (employment and economic conditions for parents) and the macrosystem (the larger, socio-cultural context surrounding developing individuals including attitudes towards families and the education of young children).

The intent of this section is to provide information from the literature that is relevant to family effects through exposure or participation in early childhood services. A lengthy review of literature on parent education was outside the scope of this review, but literature that is specific to other non-parental educational goals of family involvement in early childhood, has been focused on.

Economic Relationships with Family Participation in Early Childhood Education

The majority of the literature about implications for families who participate in or are affiliated with early childhood education programs pertains to the economic effects that early childhood programs can have for families and individual family members. It

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5 We would like to acknowledge the contribution of Steve Barnett and Len Masse from Rutgers University to this chapter and the following one. Their work was used in the sections The impact of the costs of early childhood care and education on maternal employment (in this chapter) and The relationship between the costs of early childhood care and education and its demand (in the next chapter). They also provided tables 2 and 3 in the appendix.
also considers how family economic situations and factors affects participation in available early childhood services. Most of this literature has come from the United States where many programs such as Head Start, designed back in the 1970s during the so-called War on Poverty (Zigler, 1994), are still being adapted and revised to respond to the current economic climate faced by American families today.

The largest sub-group of research studies in this area involves the issue of how early childhood programs can be utilised to assist in the alleviation of female unemployment. This is done by providing support for mothers returning to work, and providing child care and early childhood services for working mothers with young children. It is now estimated that over 70% of women with young children in the United States are in paid employment (NICHD, 1997). In New Zealand 54% of mothers with children (0-13 years) are in paid employment from a total of 432,000 families who have between them 804,000 children (0-13 years) (Department of Labour, 1999).

Research studies in the area of economics and early childhood participation are focussed on related issues. This includes issues such as back to work policies for mothers on welfare; the creation of work opportunities for mothers with young children; and the role of early childhood programs in providing parenting education, and child care for mothers attempting to return to the work force. An important aspect of this sub-group of research studies pertains to how parental choice of early childhood settings and child care is influenced by economic factors when parents are returning to the workforce.

Related to the issue of the alleviation of female unemployment amongst mothers of young children, is the attempt of early childhood programs to assist in the amelioration of poverty. This is achieved by providing more life skills to parents, supporting parents through parent education associated with their child’s early childhood experiences, and trying to break the cycle of poverty by enhancing the early experiences and hence the life prospects of young children reared in poverty.

**Enhancing Parental Employment through Early Childhood Education**

An important issue in the literature regarding the economic relationship between early childhood education usage by families and the cost of such usage emerges in several studies which have examined how economic considerations (amongst many factors) influence parental choice of an early childhood or child care setting. The most useful studies in this area, share some common features in their methodological approaches including use of large, national databases on family demographics such as wages, income, employment and ethnic background; accompanying household surveys of family work arrangements; and surveys of child care arrangement information.

Steen (1994) utilized several databases on family income and demographics to ascertain whether the use of secondary care arrangements (i.e. care used to supplement a primary care arrangement such as a child care centre) by relatives, in-home care providers or other early childhood services was attributable to:
• A lack of early childhood care services that would meet the needs and work schedules of parents, or
• Attempts to enhance the quality of the primary care arrangements through the supplementation of programs such as nursery school.

The rationale for such an investigation was based on national demographic information from the National Longitudinal Survey of Youth Cohort (12,000 individuals ages 14-21 studied since 1979), the Current Population Survey (71,000 American households), and the Survey of Income Program Participation (26,000 households). The data from these sources when analysed together revealed that 43% of working women with children under 5 years of age use multiple care arrangements. The variables that were considered by Steen (1994) were the location of the early childhood setting, education of the parents, family characteristics, race and ethnicity, and family economics. When the variables were taken into account, the use of secondary care arrangements was more likely to be utilised if the mother had higher wages, and if the children were older, pre-school or school-aged children. The author concluded that financial resources permitted families to respond to the individual needs of a child by seeking extra care or stimulation (i.e. after-school programs or individualised in-home care) to supplement the primary care situation which, in most cases, was a group care situation. Furthermore, extra financial resources from higher female wages were also utilized to provide a wider variety of educational experiences for older children.

Folk and Yi (1994) found a similar trend in the use of supplementary or secondary care arrangements in their study. They focussed on 469 families with employed mothers using participants from the 1987 Survey of Families and Households. In these families, which had at least one child under the age of 5, it was found that 36% of families with working mothers used multiple care arrangements. Among the women who did use a single source of child care, single mothers were more likely to use group care compared to married women.

Brooks-Gunn, McCormick, Shapiro, Benasich and Black (1994) investigated whether early intervention using home visiting supplemented with centre-based education programs would influence the return to employment for mothers and whether the rate of health service use by mothers was increased. This was in a study of an Infant Health and Development Program for low birth weight infants. In the study of 985 infants at 8 medical facilities in the United States, infants were randomly assigned to a treatment intervention program consisting of paediatric services, intensive home visiting up to age 3, and participation in a centre-based program for 4 hours, five days per week from age 2. Mothers of infants in the treatment program did indeed enter the workforce earlier than non-treatment mothers, but the receipt of public health assistance by mothers was not affected by participating in the treatment program. The treatment program was also most effective with women and their infants when the women had education consisting of a high school diploma or higher.

Erdwins and Bufardi (1994) also found the relationship between family economic situations and the use of child care previously in another American study. They looked at how mothers convey satisfaction with the child care they choose and the relationship between the type of child care used, the mother’s role conflict and her
perceptions about the support she receives from others. The authors used a Likert based questionnaire with 395 respondents that provided information about: family demographics (age of children, income levels, education, maternal age at the first child’s birth); aspects of the child care arrangements (satisfaction, fees, arrangements for pick-up and delivery, etc.); support from partners or spouses; women’s perceptions of role conflict in mothering and employment; and maternal separation anxiety. In this particular sample, women with higher incomes were more likely to have paid caregivers that came to their homes, but who would then use child care settings for older children. The authors called for more research about how women with fewer resources view other types of care not available to them.

The impact of the costs of early childhood care and education on maternal employment

This section reviews the research that explores the relationship between maternal employment and early childhood education usage. The quantity supplied of a particular good or service is normally assumed to be positively related to its price, holding such factors as the price of production inputs, and the state of technology constant. In the case of labour supply, however, the factors held constant relate to those required to produce human labour. An example is the cost of education or training. If we assume that supply is relatively stable, then we can look at demand-induced price changes as leading to price-induced changes in quantity supplied. The degree to which supply responds is termed its elasticity - this is formally the percentage change in the quantity supplied of a good, divided by the percentage change in price. Elastic and unit elastic responses in supply have an elasticity greater than or equal to one in absolute value. Inelastic responses in demand have an elasticity less than one in absolute value. Generally, elastic responses are more commonly viewed as an effective response in price while inelastic responses are not. For example, if we drop the price of a good and it allows us to sell more of it then we will be pleased if the extra sold more than compensates for the drop in price. This is the result of an elastic response. Unfortunately an inelastic response will see that we do not get a big enough increase in sales to make up for the price drop and we will wish we had never done it. We argue below that this is not always the case in other contexts. We will also argue that inelastic responses are not necessarily insignificant with respect to policy analysis.

Although a number of researchers have taken up the issue over the years, it is difficult to produce convincing estimates of the effects of subsidies for early childhood care and education on parental employment. To date, there is no experimental evidence to bring to bear. Thus, we must rely on econometric estimates of how much any given policy change will influence employment, and these estimates are highly sensitive to assumptions about measures, the specification of equations, and the sources of data (Kimmel, 1998). Moreover, researchers differ in how they portray their results with similar estimates viewed as implying substantial responsiveness to price or policy changes by some and small or negligible responsiveness by others.

6 Absolute means ignore the negative sign associated with values when making comparisons.
Recent research estimates of the elasticity of the maternal labour supply with respect to the price of child care are presented in Table 2 of the Appendix. Most estimates of participation elasticities are within the range from about -0.20 to -0.70. Total hours may be more relevant, especially in the form of movement towards extended part-time and full-time work that can lift families out of poverty. However, the available estimates indicate mixed results with elasticity estimates ranging from -0.78 to close to 0.0 (Averett et al., 1997; Michalopoulos et al., 1992; Powell, 1997; Ribar, 1992). Many authors have interpreted the inelastic responses of participation elasticities as indicating that subsidies for child care and child care policy are insignificant influences on women’s labour force participation. We believe that this is not necessarily the case. For example, if a government intervention results in a 10 percent decrease in the price of child care, then the labour force participation of mothers could increase from 2 to 7 percent. Is this a small effect? The effect should be judged against the ability of other policies to bring about similar results at similar costs. In doing so we must also bear in mind that an increase in employment is related to future benefits as experience and training levels increase.

There is evidence that the elasticity of maternal employment is not uniform across all population groups. A report by the U.S. Government finds that maternal employment is responsive to the cost of child care and that employment of low-income women is more responsive than the average (US General Accounting Office, 1994). In addition, price effects on labour force participation tend to increase with the age of children in the household and mothers of preschool-aged children are less likely to participate in the labour force (Powell, 1997; Blau and Robins, 1991). Kimmel (1998) finds that the effects of child care prices are different for single and married mothers. She estimates that a 10% decrease in price would increase labour force participation by 2% for single mothers and 9% for married mothers. The US General Accounting Office (1994) estimates that making child care free would increase labour force participation of all poor mothers from 29% to 44%. This is a large change for these women, a 50% increase in the number of women in this group participating in the labour force. Blau and Hagy (1998) estimate that the full funding of child care by the government would result in a 10% increase in maternal employment. The differential impacts of a change in the price of child care illustrate how an overall inelastic response may generate significant private and social benefits. Such effects are highly relevant to discussions of public policy.

There is also general agreement that the effects of changes in the price of child care on the type of care used are larger than the effects on employment (Hofferth, 1999). We note, however, that existing estimates tell us primarily about labour force status and participation rates and, to a lesser extent, hours worked. Other important aspects of employment that might be affected by a change in the price of child care are absenteeism, employment continuity, self-investment in education and training, and immediate and long-term productivity. All of these factors would affect earnings and benefits per hour worked (Hofferth, 1999). Whether changes in all of these would be large enough to warrant a particular policy decision depends on the private and public benefits from increased earnings and productivity. Moreover, there is a potential for policy shifts to simultaneously increase maternal employment and maternal investment in children, partly through increased time with children, partly through
increased child-bearing by older, more educated women (Gustaffson and Stafford, 1992). To our knowledge, no one has estimated these benefits so that, together with benefits for child development, they could be compared to the costs of subsidising high-quality early childhood care and education for either lower-income women or the general population.

One has to be cautious in comparing models as they vary according to which factors of care they incorporate and how they are treated so this will account for some of the variation. Variation will also be due to using different data sets. Earlier modelling did not attempt to distinguish between non-maternal care arrangements. In order to move beyond this over simplification within previous modelling Blau and Hagy (1998) have looked at four types of care arrangements: centre care, family day care, other non-parental care, and parental care. They also consider whether the mother is working and whether the care is paid for. An established effect, replicated elsewhere, is that the higher the price the less likely it is that families will use certain types of care (Hofferth & Wissoker, 1992; Chaplin, Robins, Hofferth, Wissoker & Fronstín, 1998; Ribar, 1995).

There are also issues about the availability of services geographically. In one study, services were more likely to be found where maternal employment is higher (Fronstín & Wissoker, 1994). This may be an oversimplification of the matter. A 1997 survey of services in Christchurch, New Zealand reported that services tended to be located where most of the children are living, but location was also based on historical factors, availability within existing facilities, and the cost of real estate. There was significant variation between Christchurch wards, however, in terms of the types of services available. The high income wards had more private child care centres and fewer playgroups whereas lower income wards tended to have more kindergartens and more community based child care centres (Pitcher, 1998). There are issues surrounding the availability of care for children of differing ages. Infants and toddlers are more difficult to find care for than young children are. Work schedules also vary. Hofferth (1999) reports that 10% of mothers work evenings but only 3% of centres offer care at this time. Thirty per cent of low income mothers work weekends but only 10% of centres offer care then, and 50% of welfare/ ‘poor’ parents work rotating schedules – a lot higher than middle income groups (Hofferth, 1999). There are also variations in the prices charged for early childhood services and the percentage of family income that it takes to pay for it. Low income families may spend up to 33% of income on early childhood services compared to the 6% spent by middle class families. When Blau and Hagy (1998) modelled fully subsidised non parental care, the use of early childhood services rose 20%. This is in contrast to the estimated 10% increase in maternal employment that this policy would have.

The effect of subsidisation on low income parents is more pronounced as there is a stronger effect of price on maternal employment. Fully subsidised early childhood care and education for those on low incomes would increase maternal employment by 15% (US General Accounting Office, 1994) but the group who miss out are the moderate income mothers who cannot access the subsidies. Hence, their job stability is more sensitive to price changes (Hofferth & Collins, 1998).
By modelling a range of changes in policy Ribar (1995) finds there is little effect on maternal employment, but changes occur in the use of paid care. However, he acknowledges his model does not account for variations in paid arrangements that might vary by cost, quality and preferences, e.g. family day care as opposed to centre based care. There is greater need for including quality variations and developmental outcomes, a project which is being undertaken by David Blau (Blau, 1997, 1999). Husbands’ labour supply and fertility may also need a place within models. From here analysis could then move to single parent families. All of the above outcomes or projections relate to US data and the data itself varies across where and when it was collected in the US. As will be shown later not all countries have the same work, family and social environment that exists in the USA. Note in Table 2 of the Appendix that the data collected from Sweden gave very different elasticity estimates compared to the US data. Economic modelling raises issues within the research that makes for cautious interpretation. For example, Ribar (1995) had difficulty in incorporating tax variations and wage rate preferences within a single model and establishing the connection between decisions to use paid care and take on work. See the limitations listed in Table 2 of the Appendix.

Decision making within families about whether mothers should seek employment is also not straightforward. Maassen van den Brink and Groot (1997) say that there is evidence that the wage elasticity of female labour supply is quite high – more so than for males. (This came from Dutch data – collected in 1992). They describe the problems within the previous modelling of this. Male orientated models of wage supply decision-making assume that men substitute work for leisure, but if we look at the situation for women this would not seem to be the case. Maassen van den Brink and Groot modelled labour supply on the basis that mothers will have 4 activities to balance: paid work, leisure, housework and caring for children. Thus, if women move out of work there is no guarantee that it will be substituted by leisure.

They refer to previous work based on the Theory of Household Production that suggests that women, compared to men, are more productive at home, relative to their productivity in the labour market. In their modelling, they try to find optimal allocations of time between the different options, which are then used to calculate the value of employment and other activities at home. The value of a mother’s contribution to household production increases with education, but not as fast as it does with increasing market wages. That is, it makes sense to go out and work for $20 an hour if I can get someone to do housework and care for my children for $10 an hour. This would imply that women with only the potential to earn a low income are less likely to return to work. US data may support this as it shows that low income mothers are not working as much as those in higher income brackets. Modelling the

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7 Xie (1997) says that the presence of children especially those under six have a big impact on the decision of married women to enter the labour force and that children are endogenous to modeling this effect. However, children are exogenous to decision making about the number of hours to work. He relates this to a fixed costs model and convenience of work and that fertility decisions are made prior to work decisions (although this would not be intuitive in the context of returning to work or taking maternity leave). His Data set was American (Berndt 1991 which Morz 1987 also used from an earlier edition) and collected over the 70s and 80s.
full subsidisation of early childhood service costs shows a faster increase in the number of low income mothers working than the rate for higher income mothers. But this does not bring the number of low income mothers working up to the level of higher income mothers (US General Accounting Office, 1994).

The presence of children (not referring to the arrival of children) in a family results in women shifting out of leisure into caring for children, but not dropping employment or housework. This effect is not apparent for men. This type of dynamic means that one should be cautious in assessing modelling which only considers one or two activities such as caring for children or employment. The internal dynamics of household production suggests that the possible outcome of a woman becoming a mother, and decisions about work, are complicated. There are also differences in the dynamics related to the age of children. Maassen, van den Brink and Groot (1997) show that the age of children in households is negatively correlated with the time spent by their mothers caring for them, but this is not so for housework (assuming that they can be separated). As the children get older the amount of time spent on housework does not change, but rather mothers can decide whether to move away from caring for children to activities like leisure or employment. We have not attempted to review this area of family literature, but rather use this as an example of the complex dynamics surrounding household decision making. Other examples of economic modelling in relation to families and children can be found in Behrman, Pollak and Taubman (1995).

Decreasing Welfare Dependency for Mothers of Young Children

Several research studies were examined which analyse the outcomes for parents of young children when government policies are implemented to reduce welfare assistance. In the studies examined, parents are encouraged to return to the workforce through the provision of work programs supplemented with child care assistance. In the United States in particular, these policies have been adopted to decrease welfare dependency, increase workforce participation of women, and to reduce the cycle of poverty that is associated with welfare dependent families, sometimes over many generations. The research regarding family outcomes of these strategies is mixed in terms of positive and negative benefits for family members, children, and the employment prospects of participating parents.

Programs of welfare reduction using work programs for parents of young children have been implemented extensively in the United States, and in some states have been implemented so rigidly that families are often cut off benefits completely unless they comply with the work requirements of the welfare reduction program. For example, Smith and Brooks-Gunn (1999) found in a study of 151 welfare dependent women in New Jersey (41% of who had been mothers before the age of 18) that failure to comply with work program requirements would result in families being cut off from assistance within three months. These families were then seeking seek assistance from “off the books” employment or assistance from extended families. The authors of the study concluded that women were often ill informed by authorities about the reasons for the termination of their benefits. The ensuing loss of income support meant that parental stress levels were increased by having to rely on extended family members...
for temporary financial support or child care. By failing to comply with work requirements, which may have only allowed women to earn six dollars per day in menial work with few long-term prospects for personal development, women’s subsidies for child care assistance were also cut. This often meant that young children were left without regular care or care of questionable quality. This situation, along with reduced parental income raised concerns amongst the authors about the nutritional, emotional and physical well-being of the children whose mothers were denied welfare subsidies was also being compromised.

An extensive longitudinal research program aimed at enhancing the educational and life prospects of 5,200 teen mothers in the United States who had applied for the Families of Dependent Children Benefit was conducted by Aber, Brooks-Gunn and Maynard (1998). They found that the success of the program in terms of getting mothers to participate in return-to-work schemes depended extensively on the clarity of the communication of the goals of the program to the parents. They recommended that such programs should be clear in their expectations about the need for education, training and employment. The programs needed be flexible to the diverse needs of teen parents, and that programs should endeavour to build support for families by encouraging the development of both children and parents through ongoing parent education opportunities for participants.

Chilman (1993), in a review of parental employment and child care policy trends in the United States, suggested that there are pros and cons in the consideration by governments of policies to reduce maternal welfare payments by providing employment initiatives and related child care assistance. This also applies to policies that increase opportunities for mothers in employment in general. She suggests that work for mothers of young children may provide benefits such as social contact outside the home, contribution to the society as a whole, and the potential for the breaking of the “cycle of poverty” as well as savings of millions of dollars in welfare benefits. She cautions that promoting employment for mothers of infants in particular may also have adverse outcomes to the economic, social and psychological well-being of parents and their children. Some of the examples she uses, based on research in the early childhood field:

- are the lack of stimulating jobs leading to long-term employment that can be offered to parents who have been on welfare assistance
- is the competitive nature of today’s job market which may be beyond the personal skill level of many young parents, and
- is the de-valuation of full-time parenting and recognition that parents are a valuable resource to their children and society in general.

She also suggests that economic pressures for women to work outside the home when their children are young may lead to “maternal overload” for women with full-time jobs in the family and outside the home. As a consequence, women’s relationships with partners, children, and their job performance, are apt to be adversely affected, thereby creating career-home conflicts. This situation is likely to be heightened for single mothers who may lack not only economic opportunities, but also the opportunity for support in their roles as mothers as they shoulder the burden of employment and raising children.
St Pierre & Lazar (1998) argue that research shows that welfare-to-work programmes have not achieved the hoped-for effects, and that they had had only modest effects on employment, income and benefit uptake. They report on a review of 65 programmes which concluded that job training and search programmes produce on average a 3 to 5% increase in employment rate, a 13 to 19% increase in earnings, and a 3-5% decrease in welfare grants. They conclude that:

Welfare-to-work programs have not lifted substantial numbers of adults out of poverty. In spite of the small positive effects noted above, a well-respected review of the impact of welfare-to-work programs has concluded that, although almost all of the programs studies led to small gains in earnings, many participants remained in poverty and on welfare. In addition, the authors voice concern that even mothers who obtain jobs frequently leave or lose them owing, for example, to lack of transportation or child care and loss of health benefits for children (p. 9).

Amelioration of Poverty through Participation in Early Childhood Programs

The largest body of literature associated with the amelioration of poverty is related to major U.S. programs such as Head Start and the Perry Preschool Project which have been specifically targeted at reducing poverty in high-risk, economically disadvantaged groups of young children and their families. Research on these programmes has been discussed in the earlier section of this report entitled The Effects of Early Childhood Education. Zigler (1994) is an early intervention researcher who has had extended involvement with the Head Start program, and has commented extensively on the goals and outcomes of the program since its inception over two decades ago. Zigler claims that insofar as the amelioration of poverty is concerned, Head Start has not fulfilled its mission for a number of reasons. First, he asserts, the “inoculation model” originally underlying Head Start’s approach to childhood poverty is simply not realistic because poor children, no matter what their opportunities in early childhood settings, still continue to be exposed to lives of poverty beyond the program. Zigler also cites Head Start’s high staff turnover, inconsistent quality amongst programs and a lack of socio-economic integration with parental needs. The lack of flexible and extended hours of child care poses a major obstacle to the long-term success of the program.

Kraus and Chaudry (1995) have commented on the effectiveness of efforts to combine the programs in New York City run by Settlement House, Head Start, and community child care programs in the past few years known as the Settlement House initiative. This integration of services was deemed necessary to streamline services, to make them more accessible to families, and to increase their effectiveness against poverty. Kraus and Chaudry (1995) report that more family participation was a primary goal of the move toward service integration. The aim was to achieve this through a streamlining of services, longer service hours for working parents (particularly with regard to child care hours), easier accessibility to services, and the opportunity for parents to combine work initiative programs with child development opportunities. Planning parent education programs that would fit within parents’ work schedules did this. It was also recommended by the authors, who were designers and implementers.
of some of these programs, that the quality of services for parents could be improved by the implementation of more effective service plans. This was made possible with assistance in the transition phases (i.e. between pre-school and school) in children’s education, and by a more streamlined intake process that would eliminate the overlap of paperwork and administration that parents often faced. Such initiatives indicate that, although programs aimed at reducing poverty in the US may still have some relevance in their aims and objectives for today’s families, the program delivery may need to be re-organised to meet the needs of families in the current economic conditions in order to achieve the original goal of the reducing the effects of poverty.

Enhancing the Quality of Life for Families through Early Childhood

Apart from the economic benefits of early childhood education participation that many programs have shown to have for families, a number of studies have shown some effects on the quality of life for families through their association either directly or indirectly in their children’s programs. In a review of the literature on child poverty in Great Britain, Roberts (1996) asserts that home visiting programs involving parent participation seem to reduce overall incidences of childhood injury and illness, and also has positive benefits in the improvement of maternal health and well-being, especially amongst families in poverty.

Cost of early childhood education does appear to be a factor in the extent to which families can provide extra resources for children and thereby enhance their quality of life. A New Zealand study of 767 Wellington area families by Lythe (1997) used telephone surveys and an Early Childhood Services survey to look at family experiences of early childhood services and resources and experiences provided for children at home. Only 17% of the families surveyed reported incomes of less than $30,000 per year, but many participants claimed that lack of financial resources was a hindrance to the provision of music and literacy activities for their children. The study found that the first early childhood service used by parents was often for personal needs such as the provision of child care during periods of parental employment or when parents were completing further study. Kindergarten usage, however, increased after age 3 because of the cheaper cost such that 75% of the families surveyed were using this service by age 3. The survey also found that employed parents were the predominant users of child care centres, and families with higher incomes were more likely to use private preschool education. Overall, however, it was found that parental satisfaction with the early childhood services being utilised was not related to the fees paid. For example, even though parents continued to pay fees for child care rather than change to a lower cost kindergarten service when children turned age 3, this did not effect parental satisfaction with either service. Therefore, continuing to pay higher fees for early childhood education did not effect parental satisfaction with the care and education their children received.

Hofferth (1999), in a review of current child care use in the United States, notes that the provision of early childhood services can raise the quality of children’s experiences provided the services available match the needs of parents, and provided the programs are available to a wide spectrum of the population. Hofferth claims that because of U.S. policies to subsidize early childhood programs for low-income...
families and the ability of high-income families to afford higher quality child care, the children from working poor families are still at a disadvantage. This is “because of their parents’ inability to take advantage of non-refundable tax credits...and their ineligibility for direct subsidies.” (Hofferth, 1999, p. 34). Therefore, Hofferth asserts, many low-income families cannot benefit from the current availability of early childhood programs, and the current system of subsidization calls into question the ability of subsidies to improve the quality of programs that are available to families.

The Psychological Well-Being of Families and Participation in Early Childhood Education

Another area in the literature that stresses the importance of the role of early childhood education involvement for families is the impact that participation can have on the psychological well-being of family members. One important sub-group within this area is research studies pertaining to parental attitudes and values that parents develop in relation to the early childhood programs and settings that they choose for their children. The contribution of early childhood programs to overall family functioning and the improvement of family relationships is also an important aspect of the literature as is the impact of early childhood experiences on family attachment relationships and separations, and these various groups of studies will now be examined.

Parental Attitudes and Values regarding Children’s Early Childhood Program Experiences

In 1990, Farquhar, in a New Zealand study of parental and professional perspectives on quality in early childhood, commented that “what one means by quality in early childhood education and care is problematic due to philosophical and practical assessment issues” (Farquhar, 1990, p. 81). More research is now available in the area of quality in early childhood, and parental attitudes about their children’s early childhood education experiences. This research has been developing extensively around the world, wherever early childhood programs are offered. Weikart (1999) has reported in a cross-cultural study of the High Scope early intervention program in 15 countries that parents across cultures agree that the most important skills for children to achieve in the early childhood years are language, self-sufficiency and social skills with peers.

Barraclough and Smith (1996) analysed whether parents choose and value quality in child care by studying children and their parents at 100 child care centres in New Zealand. Using the Abbott-Shim Assessment Profiles and the Howes-Melhuish Observation Schedule to assess quality of early childhood programs, trained researchers completed quality assessment profiles of each child care centre. Two children from each centre under the age of two were observed for a total of 100 minutes by the trained researchers, and the parents of the study children filled in questionnaires about their perceptions of the child care programs. The authors found that parents were more positive and uncritical than the researchers about the programs, and that 86% of the parents were using a centre that had been their first choice. There
was no correlation between research-based measures of quality and parent satisfaction, and only modest correlation between socio-economic status, parental education and family income for the Abbott-Shim Profiles. There was no correlation with observations of staff-child interactions. The authors concluded that some parents, because of their backgrounds, are able to choose quality but that background and demographic factors (i.e. education, income etc.) are not powerful predictors of whether parents will choose quality care for their children. In addition, the authors concluded that parents essentially make passive choices about the care they use for their children, and therefore parental choice about a child care centre is not currently a viable means of controlling quality.

Recent studies by Rolfe in Australia (Rolfe & Richards, 1994; Rolfe, 1996) indicate that parental values regarding child care for infants can change through psychological processes of adaptation that can include denial, acceptance and change in expectations about the quality of care for their infants. This can occur even when the care that infants may receive in the first few months of life is questionable. Rolfe and Richards (1994), used a longitudinal, qualitative approach with sixteen parents who used child care for infants. The authors found that parental denial of inadequate quality and hence, their dissatisfaction with their infants’ care in the initial period of child care usage was gradually replaced with a belief amongst women that professionals “know best”. This valuing of professional care created less sense of self-efficacy in women’s own perceptions of their abilities as mothers, and more parental accommodation of the home routines to the child’s routine in sleep and eating schedules at the child care centre. This was evident even when these routines at home may have been detrimental to the women’s own health and physical well-being at a time when many women were trying to return to work. This only further reinforced the notion of the primacy of group care and a belief amongst mothers in the paramount professionalism of the child care program. The authors comment that a qualitative focus in their research enabled them to concentrate on the process of change in family use of early childhood services. The process itself indicates that family values and beliefs about early childhood care reflect the ongoing life circumstances of each family unit (Rolfe & Richards, 1994, p. 11).

The National Institute of Child Health and Human Development’s (NICHD) early child care research network study (1997) analysed familial factors associated with the characteristics of non-maternal care for infants. In this study of 1,281 children and their families, parents tended to choose non-maternal care if they had only a few children in the family, and on the basis of their income, the number of hours worked, and if the mother held strong beliefs about the importance of maternal employment. Women who believed that their employment would create risk for the child tended to use fewer hours of non-maternal care and relied on more co-parental care.

Callister and Podmore (1995), in a New Zealand study, reported that in the case studies of 11 families that were interviewed about their experiences of early childhood education and care for young children, parents had specific preferences and concerns about what they desired for their children when using those services. These concerns and issues for parents were as follows:
• Parents in paid work were concerned that early childhood education and care arrangements met the emotional needs of their children during the first years of life.

• Parents were concerned about whether 4 year-old children received adequate cognitive, language, and social stimulation in early childhood education settings.

• Language maintenance in young children was a priority for both Māori and migrant families.

• Māori families who use kohanga reo programs were more likely to have mothers who moved into further education.

• Men’s involvement in the child care of their children was not always in keeping with existing male role stereotypes, and this was seen as a difficulty for some men.

Uttal (1996), in a study of employed mothers of preschoolers, toddlers and infants, explored how women reconcile the dominant cultural ideology that children are supposed to be raised by their mothers with the reality that their jobs require them to leave their children in other people’s care. She used in-depth interviews with 31 employed mothers who used a variety of care arrangements for their children. Uttal found that because total congruence between their women’s own child rearing values and the values of their caregivers is not always possible, women generally find an agreed upon set of values with their caregivers. Uttal found evidence of this in women’s discussion of their children’s care with their child care providers, and this also emphasized women’s commitment to mothering even though they may have been employed and not able to care full-time for their children. Women’s child care arrangements were not always their first preference, and women’s views of child care did not remain static during the time of the study. A dominant view of motherhood in this study amongst women was that mothering is a transferable activity that can be jointly accomplished by several caregivers, but that mothering is still considered to be a privatized notion involving individual responsibility of mothers for their children.

Holloway and Fuller (1999) have concluded that two perspectives on the role of the family in socializing and educating young children currently exist in the disciplines of psychology and early childhood. One of these perspectives recognizes the family as the primary institution affecting young children and the one from the early childhood profession places more emphasis on the child care setting (Holloway & Fuller, 1999, p. 109). The authors conclude that in order to understand the effects of care on children, researchers must probe more fully into the question of how family characteristics are related to the selection of particular care arrangements. This is important since child care choices are conditioned by the individual family’s cultural preferences as well as by child care availability. The authors claim that policies aimed at increasing child care quality must take into account how parents obtain information about the choices in care available to them. They therefore suggest that there is an extensive need for more research about parent’s goals and cultural models of parenting and education in the context of early childhood services for young children.
Van Izendoorn et al. (1998), in a study of 586 families, investigated (with the use of questionnaires) the attitudes and perceptions about child rearing, quality of the relationship between the caregiver and child, and the relationship between the parents and professional caregivers. Responses were gathered from mothers, fathers and caregivers. The authors found that discrepancies between caregivers and parents in their attitudes about children’s educational and care experiences can lead to child insecurity. The most insecurity in children was evident where the caregiving providers had more authoritarian attitudes to child rearing than parents. The authors suggest that even good communication between parents and caregivers may not erode the effects of discrepant attitudes between parents and caregivers, and that “attunement” about child rearing attitudes should be investigated and reached before children are placed in care.

Issues of communication between parents and providers were also part of an interesting, large-scale study by Cryer and Burchinal (1997) of 3,100 families of infants, toddlers and young children in the United States. They used questionnaires gathered from parents and staff in a random sample of 400 early childhood programs in four states to explore the issue of whether parents can be effective child care consumers by analysing their values and assessments of the child care that they ultimately chose for their children. Their study was part of a larger Cost, Quality and Child Outcomes study conducted in the same four states. The rationale for this study stems from an ongoing concern of early childhood educators, namely why do recent studies suggest that parents are usually satisfied with child care even when most care (according to American researchers) is of questionable quality? The authors were particularly interested in why classical economics does not seem to apply to the provision of child care in that quality in many programs does not seem to be increased by parental demand. The authors were therefore interested in ascertaining whether parents are informed about quality, but have different priorities than early childhood providers, or whether in fact parents lack accurate information about what happens to their children in care and are therefore not able to distinguish whether care is of good quality. The method of this study involved the use of trained observers to ascertain whether a centre was in fact providing good quality care for children, and these observations were compared to parents’ assessments of the programs. Information about parental values concerning care and early childhood education in general was also collected.

The results of the study provided some disturbing findings about parent knowledge of the care they choose for their children and the information that they have about the quality of that care. Even well educated parents, supposedly well informed consumers, were unlikely to match the quality of care they purchased with their values about the type of care they preferred for their children. This relationship was evident even where the values of the providers matched the values about care with the parents, so it would appear that parents lacked information about the quality of the actual care provided. This relationship held even when age of the child, and family demographic variables were considered. The authors therefore suggested, based on their findings, that parents may overestimate the quality of the care they are purchasing because they lack information due to limited time spent in the care setting so that they can monitor what is happening with their children. The authors also suggest that for some aspects of
care, parents may not worry about issues that they do not value highly. For example, while parents of infants tended to value health and safety issues the most, they might be less likely to worry about the quality of the educational stimulation that an infant received because health concerns would be paramount. Parents require child care that fits in with their employment schedules and are often faced with a lack of comprehensive choice for full-time care options. The authors suggest that denial about the lack of quality of child care may be strong amongst parents where choices and options have been limited. The authors, therefore, suggest that apparent parental satisfaction with early childhood care does not give providers license to assume that they are providing high quality care and that increased consumer protection is needed for parents through better training and accreditation of early childhood providers.

In New Zealand, Farquhar (1995) has drawn attention to the need for more research on the decision-making surrounding the selection of child care by parents through her qualitative study of a small group of women making the transition back to the workforce. In her small group of participants, she used interviews that were semi-structured to gather information from women. Information was gathered on their preferences for the ideal care that they would choose for their infants, the choice they ultimately made, and their satisfaction with the care used in relation to the professionalism of the care. Her findings are interesting in that they convey the choices and decision making of women about early child care over an extended period of time. Women were generally satisfied with the care they had chosen, whether it was home-based or centre-based. The women who chose centre-based care viewed it as safer and less likely to exploit women child care workers. For all women, child care costs were experienced as a drain on women’s work incomes, but child care was viewed as necessary for women’s work and career advancement. Regardless of the type of care chosen, common themes amongst women were that:

- education for their infants in care was not a priority,
- that communication between parents and caregivers was perceived by parents as being essential, and
- that parental emotional needs were important determinants in the decision making process as well as the satisfaction with the care that parents experienced.

Effects on Family Functioning and Relationships of Early Childhood Participation

Several studies highlight the impact of family use of early childhood programs or child care settings when women return to work after the first child. Feminist researchers have long claimed that women must assume the double burden of responsibility for the home and care of children while also trying to balance the role of worker when they return to work either part-time or full-time (Hays, 1996). A study illustrating the ramifications of this dual responsibility on the self-efficacy and psychological well-being of 42 professional women returning to work full-time after the birth of their first child was conducted by Ozer (1995). The women, who ranged in age from 20-44 years of age, were recruited from antenatal classes and interviewed over the telephone. Ozer (1995) found that women’s responsibility for child care arrangements was associated with lower maternal psychological well-being and greater distress. Women who perceived themselves as being able to cope with the
demands of their dual role (self-efficacy) experienced less personal distress. The best predictor of their psychological well-being was the women’s belief in their capacity to enlist the support of their spouses in caring for the child whether that support was present or not.

In a review of current American media coverage of the Clinton administration’s notion of child care being the responsibility of the community, McFadden (1998) asserts that U.S. policies aimed at increasing maternal employment overlook the reality of women’s exhaustion, conflict and confusion about how to manage work and mothering. She notes that current feminist rhetoric perpetuates the notion that not to work means women may be lacking ambition, and that this notion devalues the importance of mothering. She claims that these current policies, which also necessitate economically that mothers must work, in turn perpetuate the need for more non-maternal care which women must assume responsibility for arranging. This can be socially stressful for young parents and their children as they try to cope with ever-increasing social demands outside the family.

These concerns about the stress caused by women’s various roles in the family were also raised in a New Zealand report, *Striking a Balance*, on parental leave and the use of early childhood services in New Zealand (Callister & Podmore, 1995). In case studies of 11 families, the authors found that mothers in paid work find it difficult to juggle their own needs and the needs of their child. When using early childhood settings parental concerns were often focussed on whether infants in particular were having their socio-emotional needs met in care, and whether independence was being encouraged in older children by caregivers.

Family functioning within the context of child care participation within the family is the focus of two interesting studies. The first, a study by Van Dirk and Siegers (1996) of Dutch 405 dual-earner couples using child care outside the home found that families with higher incomes tended to have a more equal division of child care amongst couples. If couples had more children than other couples, the division of child care between spouses or partners was likely to be less equal. Similarly, couples with less traditional beliefs about gender roles and equality were more likely to share child care tasks equally. The second study by Ozer, Barnett, Brennan and Sperling (1998) looked at whether participation in child care responsibilities by both men and women in a random sample of 133 dual-earner couples increased or decreased stress in both mothers and fathers. The findings of this study indicated that the more fathers participated in child care relative to their wives, the lower the fathers’ distress psychologically. Similarly, the more women were required to be involved in child care tasks or for the responsibility of arranging child care, the more likely was there to be a decrease in women’s perceptions of marital role quality and an increase in their personal distress.

McBride and Rane (1997) focussed on 350 at-risk children in a project entitled Men and Kids which was designed to enhance father/male involvement in children’s pre-kindergarten experiences. They found that fathers became more involved when they were targeted specifically through programs such as men and children play nights, field trips and parent education groups for men which were offered at times that were
flexible enough to accommodate the work schedules of male parents. Maume and Mullin (1993), however, found an opposite side to father involvement in the lives of their young children. In their study of 646 women with children under the age of four, women who relied on husbands for child care are more likely to quit work, especially if the women have low wages. The authors suggest that women, who lack stable and financially secure employment, may perceive that father care is of lower quality than if the women were to provide the child care themselves. The added factor of lower economic stability may provide a rationale for women choosing to care for their own children rather than relying on a spouse or partner.

**Attachment Relationships and Early Childhood Education Participation**

Several researchers are now attempting to analyse the issue of attachment relationships when children are in extended care by studying the implications for parental psychological well-being as well as the security of attachment in children. For example, Rolfe (1996), in an Australian study of 156 mothers with infants less than 2 years of age, used the Maternal Separation Anxiety Scale (MSAS) and the Beck Depression Inventory to assess incidences and reasons for depression in mothers who use child care. Rolfe (1996) found that when mothers used child care for their infants after returning to work, separation anxiety amongst mothers was found to be a significant predictor of depression in mothers using child care during the first few months of their return to work and eight months later as well. An interesting finding of the study was that there were lower levels of concern about the separation effects on their children in mothers who used child care, and that these women were more likely to suffer from depression. The author suggests that the coping mechanisms that child care mothers use to rationalise their choice such as denial may lead to depression. She asserts that the psychological energy needed by women for such defences becomes quite high and may lead to depression even though women’s separation anxiety levels may be low, a finding also reported by Brazelton (1993, cited in Rolfe, 1996). Rolfe asserts that women’s separation anxiety coupled with their deference to the professional caregivers also creates a negative self image which may also lead to higher levels of depression for these women. She advocates further research in which studies of mothers using child care might reveal how high maternal separation anxiety may contribute to the development of insecure attachment relationships and how depression amongst mothers may also hamper the infant-parent relationship when mothers are returning to work.

Such research is vital since many prominent early childhood researchers such as Scarr, Phillips, McCartney and Abott-Shim (1993) have revealed that the quality of child care as an aspect of family and child care policy must take into account the role of family stress. They claim that in many studies of early childhood experiences, parents and teachers now recognize that children do less well in the early childhood years when their social and emotional development is affected by family stresses. (See the section on Process Quality: Staff-child relationships for research on this aspect of attachment relationships)

**The Outcomes of Adult Relationships in Early Childhood Education**
Parent education has long been viewed in the field of early childhood intervention as integral to the success of such programs for long-term family and child outcomes (Powell, 1996). Powell, based on his research and involvement with parent education and early intervention programs in the United States, asserts that parents and educators need to have a “shared perspective” in the education of young children that allows for co-operation between home and early childhood settings. To achieve the partnership in a shared perspective between parents and teachers, Powell suggests that adult and child needs alike must be met by the aims of a program. There must be a clear distinction between the roles inherent in teaching versus parenting, and there must be recognition of how professionalism can dominate or hinder family agendas that should be an integral part of children’s educational development in a true partnership between families and the early childhood provider. Using an ecological perspective, Powell (1996) suggests that continuity and congruity between the setting and the family can be achieved:

- when there are compatible role demands for children between settings,
- there is involvement by similar people across settings (such as a parent), and
- there is open communication between parents and providers.

In a review of parent education goals based on the outcomes of a parent education program used in the Turkish Early Enrichment Project (TEEP), Kagitcibasi (1997) presents several key ingredients of parent education that parallel child development components of an early intervention program set up in a developing country. After an extensive meta-analysis of approaches to the design of early intervention programs, Kagitcibasi and his colleagues chose to implement what appears, according to available literature in the area, to be the most effective means of providing parent education. These include a) achieving long-term, family outcomes, and b) achieving lasting outcomes in child development effects in social, emotional and family domains as well as in cognitive functioning. Kagitcibasi (1997) suggests that while multiple outcome objectives for children and families should include social adjustment, school performance, better parenting, increased women’s status, and better family interactions, these outcomes can only be achieved through the components of quality parent education. He asserts (Kagitcibasi 1997, pp. 267-268) that the indicators of good quality parent education are:

- a program of parent education that provides a contextual approach with multiple goals and multiple targets,
- shared goals between providers and parents,
- proper timing of the introduction of the parent education component,
- empowerment of parents within the program,
- cost-effectiveness that can benefit parents and children over an extended period of time

Undoubtedly these indicators of effective parent education programs can be applied to other studies in the literature in which parent education or parent involvement has been an integral part of early childhood service provision. These indicators may also provide a basis for measuring the effectiveness of future early childhood initiatives that seek to include parent education.
Conclusion - Effective Outcomes for Families in the Ecological Context of Early Childhood Programs

The literature that has been examined in this section has generally been of sound quality involving relatively large sample sizes and valid assessment procedures. A number of these studies have also been longitudinal in nature, providing useful information about longer-term outcomes. Although much of the research available on early childhood’s effectiveness for outcomes in family functioning comes from overseas, the issues that are raised from an economic perspective and from a family functioning perspective are relevant to the context of early childhood in New Zealand.

According to the ecological model presented at the beginning of this review, the effective outcomes for families participating in early childhood services are evident (based on the literature examined), when the needs of families are addressed by early childhood programs within each of the components of the ecological model. In this regard, the literature stresses that effective early childhood services must encompass a broad range of economic and social contexts, both inside and outside the family, in order to serve families’ economic and social needs. This will also optimize early childhood education’s influence on the development of children within the family and the wider community.

The literature reviewed in this section has revealed that the extent to which families benefit from participating in early childhood programs is affected by several factors in the ecological context in which the program is situated. Bronfenbrenner (1979) has provided a model of the ecological influences on development. Central to this model (as described earlier in the conceptual framework and model) is the notion that child rearing and the development of children within the family context is influenced by the larger macrosystem. This includes the wider cultural values and beliefs surrounding family life as well as the education and care of young children. The majority of the studies reviewed in this section pertaining to economic relationships between families and early childhood education stress that family well-being will be enhanced when early childhood services implement policies that seek to reduce the stresses of parental employment (Steen, 1994; Folk and Yi, 1994; Brooks-Gunn, McCormick, Shapiro, Benasich & Black, 1994). This is achieved by providing care and education arrangements that enable parents to fulfill their roles as both workers and carers of their children.

In addition to the cost of their services, the literature suggests that early childhood providers should also address issues such as hours of operation and the provision of quality in service delivery to cater for the needs of the modern family within a dual-earner culture. This is the culture that Bronfenbrenner (1979) has identified as part of the macrosystem. Where families are struggling to cope with the economic conditions or economic policies inherent in the wider macrosystem or economic culture of the wider community, the literature also suggests that early childhood providers should
seek to ameliorate those conditions for families. As several of the studies suggest (Smith & Brooks-Gunn, 1999; Chilman, 1993; Zigler, 1994), early childhood providers have an obligation to provide services that seek to reduce the effects of poverty (where this is relevant) by providing high-quality, compensatory programs for children. This may also include support for parents either directly (through parent education and training) or indirectly through resources (such as fee subsidization). In assessing parental satisfaction with early childhood services, this body of literature therefore stresses the importance of macrosystem policies and programs that are specifically designed for the economic conditions that parents’ face at a particular time. The literature also suggests that effective outcomes from participation, and satisfaction with that participation, will occur for families when the early childhood microsystem is supported by the exosystem with resources, funding, and training for staff that is appropriate to the needs of the families being served.

Within an ecological framework of development, this means that early childhood services must address issues for families that relate to the microsystem (the roles, activities, and relationships of individuals) both within the early childhood setting and the family setting. The literature examined stresses the importance of parental attitudes regarding quality of early childhood education. Several of the studies reviewed (Van Izendoorn et al., 1998; Holloway and Fuller, 1999; Cryer & Burchinal, 1997) suggest that parental attitudes will be influenced by the extent to which early childhood services provide for high-quality education and care that parents would want to provide themselves. These studies also emphasize the importance of the parental role within the family and early childhood microsystems as a means of evaluating the success of a program. In New Zealand, studies such as Callister and Podmore (1995) illustrate how the stress placed on parents by the many role obligations they face as workers and as parents will influence how families view the contribution that early childhood settings are making to the socio-emotional needs of the child.

The psychological well-being of families will also be influenced by early childhood programs within the exosystem and mesosystem components of the ecological model. The exosystem (the location of resources, training opportunities, support networks and kinship relationships) is important for providing early childhood services with well-trained staff and well resourced high quality programs. These are examples of some of the factors identified by Rolfe (1996) as crucial to the successful outcomes for families participating in early childhood education. Studies such as that of McBride and Rane (1997) suggest that early childhood resources should cater to all members of the family who are directly responsible for the care of young children, and that such resources can ameliorate the risks associated with poverty and other at-risk conditions for young children. To achieve successful outcomes in early childhood education, the psychological well-being of families will also have to be catered for by services. According to the research reviewed here, this is more likely when the communication between early childhood settings and families (the mesosystem of the ecological model) is facilitated by effective transition policies and by the nurturing of supportive connections between microsystems. These policies deal with such matters as flexible hours within settings and compatible child rearing models between caregivers and parents (Van Izendoorn et al., 1998). Cryer and Buchinal (1997) also identify
effective service policies that encourage communication between families and caregivers as part of the mesosystem. They suggest that early childhood providers have an obligation to assess parental perceptions of the quality of their services and to keep parents informed of their aims and objectives.

The integration of economic considerations along with those of family functioning and well-being are therefore, according to the literature, achievable outcomes for early childhood providers. The results of this integration are more positive outcomes for families. For this integration to be accomplished, however, all aspects of the ecological model must be working together in the provision of services that meet the needs of the whole family. In addition, these services must cater to the prevailing cultural and economic conditions that affect the lives of families with young children. There are limitations, however, to what early childhood services can do for families. This is demonstrated by the example of parents who go out to work to support family goals. Early childhood care and education has a necessary contribution to the attainment of those goals but is not sufficient on its own.

Messages from Research

- Children’s participation in various forms of education and care can influence family psychological well-being, family relationships, and family functioning. The availability of child care can encourage women to go to work, but it can also have some negative effects for the well-being of family members such as increased role strain amongst mothers who must juggle work and child care responsibilities.

- Economic policies and child care support programs have to be appropriate for families and children, and they should be flexible for the diverse needs of working and non-working parents who live in a variety of family formations.

- Access, affordability, work schedules and current income level all create different needs for working mothers and their families. As the price of care rises the demand for certain types of care drop. This is more noticeable than any drop in maternal employment due to any price rise.

- Economic disadvantage may result for families of low socio-economic status when subsidies set up for economic and child care assistance are very strict and limited in their rules for eligibility.

- Parental satisfaction with early childhood programs is not always an indicator of quality, and there is a question amongst researchers as to whether parents can readily identify indicators of quality in early childhood care and education.

- The literature indicates that there are now very clear and well-recognized indicators of quality for successful outcomes in approaches to early childhood programs that utilize a parent education component, and that parent education works best when there is a partnership between early childhood program providers and families.

Future Research
If early childhood providers are to incorporate the needs of families into the goals of their programs that aim to provide quality services for children, then the literature on attachment relationships, new directions in goals for parent education, and research regarding family functioning is very relevant.

- The effects on maternal psychological well-being when mothers use non-maternal care for their young children is an area that researchers need to investigate more thoroughly.

- New Zealand data should be used to replicate economic modelling studies carried out in other countries (largely the USA). This is a lot more feasible now that the Department of Labour has a recent data set (collected in 1998).

- Although there have been a some New Zealand studies about parental perceptions of the quality of care for their children, more research needs to be carried out which looks specifically at the basis for parental choice and attitudes towards various types of early childhood education and care programs, and how these affect family functioning and relationships between various family members.

Some important questions, which should guide future research, are the following:

- To what extent are the aspirations of individual families incorporated into early childhood programs in New Zealand such that families are assisted in achieving their sociocultural goals as individual family units as well as their economic objectives within the context of New Zealand society?

- What are some of the possible solutions for assessing how family dynamics are affected by current and future New Zealand government policies regarding family welfare and employment program participation, particularly in families that have young children?

- What are the issues surrounding the aims, objectives and provision of early childhood programs that are of significance both culturally and economically for Māori families?

- What are the means by which families in New Zealand are informed about all aspects of early childhood programs, particularly with regard to the issue of quality in programs that individual families choose?

- What are the messages about early childhood programs and policies that are available to families through the media, and how are families’ values taken into account in these messages?

- What sort of framework should be developed in New Zealand around the choice and assessment of services available to families?
Chapter 7

Early Childhood Education Policies

This chapter looks at how early childhood educational policy are directed toward concerns raised about the influence of the macrosystem (see diagram page 11). Policy makers have concerns about the best way to use early childhood education and family policies to positively influence the outcomes for children, families and society in general.

Hofferth (1999), Barnett (1993), Kamerman (1991) and Lamb and Sternberg (1992) identify a range of purposes of such policy.

- to promote child bearing by reducing costs – these policies apply to all parents of dependent children
- to facilitate parental employment – these policies apply to employed parents
- to provide early intervention services to children who live in poverty and the subsidization of early childhood education costs of low income families who might move into welfare – these policies are directed to families who meet certain low income criteria
- to increase the well-being of children in nonparental ECE by reducing costs or increasing quality – these policies are directed to children

These same authors acknowledge that each country develops their own priority across policy goals, and distinctions can be made between countries as to what priority and focus each goal is given. For example, in the USA policies seem to be directed to low income families (Barnett, 1993; Hofferth, 1999), whereas, in France and Sweden child development goals seem to have a relatively higher priority (Hofferth, 1999; Kamerman 1993).

Each policy objective has its own set of policy tools or programs to facilitate the desired outcomes. Hofferth describes the different types of programs currently in use in the USA. (Many American research articles make reference to US policy funding programs which are quite complicated once state and local level programs are included alongside Federal programs.)

US tools for the support of raising children usually come in the form of tax exemptions and credits. There are secondary benefits such as health insurance and free program enrolment such as Head Start. Assistance in the early 1990s for the employment of mothers on welfare was via three policies: the Aid for Families with Dependent Children (ADFC); At Risk Child Care for those likely to become ‘welfare dependent’; and Transitional Child Care, when mothers are moving off the ADFC. McDonald (1993) provides a review of the policies during the 1980’s.

Please refer to the footnote at the beginning of chapter 6.
In 1996, the above programs were combined with the Child Care and Development Block Grant which subsequently had a name change to the Child Care and Development Fund (CCDF). The CCDF uses federal funds for subsidies to families who earn up to, but not above, 85% of a state’s median income. There is also the Title XX social service block grant for supporting family ‘self sufficiency’ – 15% of this is used for early childhood services. There are also employer and parental leave policies. One of the first policies to be passed by President Bill Clinton on entry to the White House in 1993 was the Family and Medical Leave Act. This provided 12 weeks mandated unpaid parental leave from employers with 50 or more employees.

Those policies supporting parent choice include those that reduce the cost constraints of care. Often this is in the form of a voucher or a subsidy directed to a provider. The provider may be a relative or another person offering non-formal care. Hofferth (1999) describes the role of public subsidies and their function in the early childhood sector. The main aims for the subsidies are to make care affordable, improve program quality and promote parental choice. Her assessment of mid 90’s policies unfortunately draws on data (National Child Care Survey, NCCS, 1990, Hofferth, Brayfield, Deich & Holcomb, 1991) collected from an earlier policy period. However, the issues raised do point to important questions about the implementation of subsidies. Low-income families can make use of direct assistance subsidies, but middle income families used tax credits so that they could afford to pay for child care and claim the rebate later. There was a group of families, however, whose income was too high to receive direct assistance but too low to be able to pay for care and claim a rebate later. This raises issues about the equity of access to subsidies that can then have an impact on choice.

This choice does not necessarily relate to quality but rather to the different types of care that vary by cost. Hofferth claims that the flow-on effect is that families on welfare or those at middle income levels have access to more costly types of care. The more costly types often correlate with program variables such as staff-child ratios, staff training, staff turnover and group size as shown by Phillips, Vornan, Kisker, Howes and Whitebook (1994). One outcome of this differentiated access to care is that the potential loss of good quality child care may act as a disincentive to moving off welfare, adding to the poverty trap faced by families. Effective marginal tax rates can be very high as wage increases remove families’ access to targeted benefits. Thus, as gross household income rises net income shows only minimal increases. This is due to earned income having to compensate for the loss of benefits, tax credits and rebates giving rise to the creation of a poverty plateau (Alcock & Pearson, 1999). Thus policies at the macrosystem can have unintended outcomes for families and can end up supporting unintended flow-on effects within a society.

Parent focus seems to be on the type of care, e.g. kindergarten, full day centre-based care, family day care, etc, rather than on program characteristics such as quality per se (Blau & Hagy, 1998). Parent choice, in terms of how much they are willing to pay, has been shown to relate to access, including convenience and location, and trained staff (Hofferth et al., 1998). The quality of centres in broad structural terms, do not relate to what parents are willing to pay an extra dollar for, but rather the highest quality programs correlate with those which have substantial public funding (Helburn, 1995).
This would seem to suggest that policies that provide funding to parents would not directly improve quality as much as providing the funding directly to the centres.

**How policies influence maternal employment**

In the previous chapter on family participation in ECE it was seen that the price of care has an effect on maternal employment. Subsidisation of child care costs does impact on maternal employment but how to evaluate the benefits of such a change is more difficult to assess. One approach to studying how early childhood care and education policies might influence parent decision making is to consider their impact on maternal employment internationally. Gornick, Meyers and Ross (1998) show the subtle influence of early childhood education and parental leave policies (negatively formulated as child penalties) on employment rates across 14 countries. Those countries with fewer/ ‘worse’ policies in place have lower employment of mothers when children are younger than six, compared to mothers whose youngest dependent child are 12 or over. That is those with more/ ‘better’ policies have greater ‘maternal attachment’ to work regardless of the age of the children. There is, however, little relationship between the policies in place and rates of maternal employment across countries, i.e. countries like Belgium and France with positive policies can have low levels of maternal employment but in having more/better policies there is greater maternal work attachment of those. This suggests that early childhood education and parental leave policies interact with work attachment rather than a country’s overall level of maternal employment. Gornick et al. found that three of the Scandinavian countries (Finland, Sweden and Denmark but not Norway) have the highest maternal work attachment along with France and Belgium, whereas Australia, USA and Great Britain have the lowest. New Zealand was not among the 14 countries included in this study.

Gornick et al. (1998) acknowledges that their research cannot reveal the causal links between policies and maternal employment, as demand for maternal employment might lead to the development of policies. Lamb (1998) suggests, however, that the economic environment sets the demand for maternal employment, which elicits a range of policies to encourage supply. He cites the Swedish need for a labour force after World War II as a reason for their current positive early childhood policies. A reduction in demand for maternal labour occurred in post war America when the US government, which had been providing early childhood facilities during the war in order to mobilise women, removed them to reduce the supply of mothers wanting to work. This was done to make way for returning servicemen who were in need of employment. As a result early childhood facilities disappeared, as did images of the importance of women to the paid labour force. In both the Swedish and American case the supply of women to the workforce was mediated by policies which attempted to meet demand created by the economic climate of the time. Lamb and Sternberg, (1992) could not find one country where demand for non-maternal early childhood care and education was not driven primarily by an economic imperative to increase maternal employment.

This is generally supported by Gornick et al.’s (1998) work given that those countries with high maternal employment rates (80% and above) did have more/ better policies
and those with lower maternal employment tended to have fewer/ worse policies in place. The exceptions were France and Belgium, with maternal employment rates similar to the USA and UK but had policies similar to the high maternal employment rate countries. France and Belgium were not amongst the twelve countries considered by Lamb and Sternberg, (1992) described above. The general conclusion is that the initial demand for mothers in the work place is influenced by other factors beyond the availability of early childhood care and education. The subsequent supply to meet the demand is mediated by policies, and hence the cluster of countries with more/better policies is largely made up of those with quite high maternal work attachment and high maternal work demand and supply. This does not explain those countries like France and Belgium with more/better policies that had low maternal work participation. Each national context should be able to provide accounts for international variation. The caution here is assuming an international norm where any variation from the norm is considered the exception, especially when both of these studies had a limited number of mainly developed countries to consider. The only consistent pattern is that those countries who require mothers input into the labour force have more/better policies in place to make this possible.

There are limiting features of Gornick et al’s data to be kept in mind. It draws on the Luxembourg Income Study that is now 15 years old. Data was collected over 1984-87. Since this time the use of early childhood services has continued to increase. There has been a 40% increase in the number of centres in New Zealand between 1990-98 (Ministry of Education, 1999). Many of the studies of maternal employment, such as Gornick et al’s, looks at the return of married women to the workforce. Italy and the USA did not include those parents co-habiting. There is no account of single mothers or those mothers who have never been in the workforce. One could ask to what extent they have their own employment dynamic. Ribar (1995) chose to focus on married women on the basis that this might be the case. Italy stood out as an example of this in Gornick et al’s study. In all countries, with the exception of Italy, children decrease the likelihood of employment. They could not explain, however, why children increased the likelihood of maternal employment in Italy. Our own interpretation includes a cultural explanation. In Italy at the time of data collection it was common for women to marry close to having left school and there was no expectation of entering the workforce prior to marriage. After children have been born into the family and started school then mothers might consider finding employment. Hence, the presence of children increases the likelihood of Italian women working when compared to their situation prior to marriage. Janet Gornick is checking with Italian labour economists to see if this explanation matches their data.

Other assumptions in the models of economists also include varying approaches as to how to handle the distinction between part-time and full-time work. In the main, the number of hours of work has been treated as a discrete variable, often full-time versus part-time (see table 2 in the Appendix). Unfortunately this does not allow the models to account for changing costs of early childhood services correlating with the number of part-time hours worked. Indeed it becomes difficult to follow the movement of mothers from full-time work to part-time work or part-time/ full-time work to no work. Labour Force surveys also tend to blur this distinction. In Australia part-time work is defined by working 1-35 hours in any particular week (Brennan, 1998). In the
New Zealand ‘child care’ survey, which builds on the New Zealand Household Labour Force Survey, the definition of part-time work is anything less than 30 hours (Department of Labour and the National Advisory Council on the Employment of Women, 1999).

Alongside the problems of how to incorporate variables in models is the issue of which variables to include. McDonald (1997) believes that, when the demand for maternal employment is held constant across countries, fewer/ ‘worse’ policies will impact on fertility rather than maternal employment, i.e. women forgo children rather take up the costs of having them. Zhang (1997) looked at the result of theoretically modelling the effects of subsidies for education or subsidies for having children, and its subsequent effect on fertility and growth. He has demonstrated that providing subsidies for each child born increases fertility and slows growth through lower education expenditure per child, whereas, subsidizing education leads to lower fertility and more education expenditure per child. The investment in human capital increases economic growth and creates a heavy incentive for subsidising education but these changes appear as short-term gains in relation to lowering fertility that may then be below replacement levels. Of course most developed countries would have some combination of both policies but such a dynamic might point to how these policies work together to influence both growth, as measured by human capital investment, and fertility.

McDonald’s suggestion was that the difficulty for women and therefore families to balance work and care for children (a cost of having children) leads to a drop in fertility. His comparison of Australian families with families of Southern European origins and those with Irish-British origins suggest that family organization and culture have an impact on fertility. The Southern European Ethnic groups in Australia previously had high birth rates but they have now dropped below replacement rates. Similar patterns are occurring for Māori, although they are currently hovering around the replacement rate of 2.1 (Jackson, Pool & Cheung, 1994). Our understanding of these changing dynamics also have to account for the higher fertility in those countries such as the Scandinavian countries, which value and support having children. This would appear to be achieved through more positive early childhood care and education policies, i.e. fewer penalties for having children (Gornick et al., 1998). Thus policies directed towards families specifically have macro level outcomes on variables such as growth and fertility that probably need to be considered in conjunction with micro level outcomes for families, such as disposable income. This could lead to some complications, as it might be possible that policies thought to have positive outcomes at one level are having negative outcomes at another.

**Gender equity orientated policies**

Consider taxes, which are calculated progressively over a household rather than individuals in the household, so that the second income earner is penalised. In countries in which the tax system does not penalise the income of the second person, then fertility is higher. Those countries that place more emphasis on the provision of services compared with using transfers are more likely to have higher fertility rates, as it is women who usually use these family services. Tax transfers are described by
McDonald (1997) as male breadwinner-orientated, whereas service provision is called gender equity orientated. Women substitute out of employment for care giving if the service is not provided. This results in not only decreased work attachment but also lower fertility, as income is lower. This suggests that the provision of free or near free early childhood services might fall into the service category. Blau and Hagy (1998) and Brandon (1999) found some support for this in their modelling of data where increasing spousal income has a negligible impact on the family use of early childhood services and a small drop in maternal employment. A significant factor in deciding to use child care for nonemployed mothers is nonwage income. And when a service has no cost it will have minimal impact on a mother’s income. Thus theories about household financial arrangements may also help us understand some of the decisions about child care choices and maternal employment (Dhawan-Biswall, 1999).

McDonald’s account of these fertility patterns is to suggest that policies that assume a male breadwinner model of the family will provide more benefits to men than women. When this happens there is lower maternal employment compared to when the benefits, via policies, are directed toward women. Where social and economic institutions have responded to gender equity, fertility has not fallen to the same extent. However, where institutions follow a more male breadwinner model of policy which are not supportive of alternatives, then fertility has fallen as women spend more time in child care, with lower household income and less access to services.

McDonald also says there are difficulties in assessing the costs and benefits of having children because one has to separate out both the economic (direct and opportunity costs) and psychic benefits and costs. Delay in child bearing gives women the chance to experience work benefits and therefore they are more aware of opportunity costs in forgoing work. As female incomes rise, as they did over the 70s and 80s, then it becomes more costly for governments to compensate through transfers and service provision. Thus economic opportunity costs become more dominant within family decision-making, given that the costs of not having children, especially the psychic ones, have not been experienced. Indirect costs have a more immediate impact on a family i.e. the loss of maternal income, whereas, the direct cost of children are spread over the life of the child.

This suggests two policy options - either roll back gender equity in social institutions, or advance them so that men and women can combine work and family. Advancement requires a change in family values as much as in social institutional values. There is a difficulty associated with viewing children as a cost within the current liberal economic context. This is because there is no account made of the future benefits that accrue from the future peopling of society. Goward’s (1998) interpretation of McDonald’s work was that Australian policy is working well, as Australia’s fertility rate is 1.8, but this would seem optimistic given that the accepted replacement rate in developed countries is 2.1. Furthermore she did not respond to McDonald’s point that since 1997 the Australian Government withdrew cash payments to mothers and converted them to tax transfers to the principal income earner. This would seem to direct transfers away from the mother, which is going back to the male bread winner model of policy development and implementation.
In conclusion then there is a link between child care policies and outcomes, and maternal employment, but the relationship is mediated by a range of factors, including the different types of care available, and the level of work attachment shown by mothers and influenced by policies. The outcomes of these interactions also have important implications for national fertility levels.

**The basis of early childhood care and education policies**

Thus within just one of the 4 goal areas of policy (referred to at the beginning of this chapter) there can be a complex social dynamic occurring that influences and constrains the development of early childhood education and care policy. Gornick et al.’s (1997) research shows there are policy variations between countries which suggests the importance of analysing what has been driving policy in the past, and what outcomes that it might create around the world in countries similar to New Zealand.

As Lamb (1998) mentioned above, it is very difficult to find a country that did not have an early childhood education policy driven by the country’s wider economic need at the time. However, politics is infused within the economy. For example, the politics of the women’s movement in the 70’s led to a renewed interest in early childhood education (Cook, 1985). This occurred alongside the introduction of equal pay rates for women and the introduction of the Domestic Purposes Benefit. Haveman and Wolfe (1993) feel that the renewed interest in the education of children and in children’s policy in general relates to the worsening position of children within developed countries. Those very countries which are considered developed and therefore by their very nature should have progressed beyond large numbers of children living in poverty, are showing worsening health and education statistics. They also claim that the prospects for children in the future are not bright. Likewise the opportunities for children in developing countries are even worse (Van der Gaag, 1997).

As economists, Haveman and Wolfe feel there are good reasons to believe that there has been under investment in children. Firstly, the externalities and intergenerational effects pose problems in assessing and comparing different outcomes. Secondly, capital market dynamics do not encourage private investment in Human Capital. Securing a loan is more problematic for human capital development than capital investment. (This was one of the reasons given for the higher interest rates on New Zealand student loans compared to mortgage rates). Finally, with different levels of bureaucracy, such as in the USA, with federal to state to local government involvement, there are difficulties in guaranteeing or recouping the investment back at the level at which the investment was made. Wolfe (1994) uses the economic term “spillover” to refer to this last example of under investment. Barnett (1990) says the same problem holds when looking at families from within the economic model of family behaviour. This model suggests that many of the returns to early childhood education do not accrue to families but to society in general, and hence families on their own will under invest in early childhood education. Wolfe (1994) describes such externalities - benefits beyond the family - as nonmarketed external benefits. Thus, if families will not invest in early childhood education because they will not recoup all
the benefits, then this suggests a role for possible government intervention. Van der Gaag (1997) uses the term ‘productivity potential’ to describe the possible levels of future productivity achievable within a cohort of children when they are provided with early childhood education and schooling. As each child is provided with the resources to increase their productivity then the whole cohort benefits, as does society in general. Barnett’s (1990) assessment of the Perry Program suggests that families are only receiving 25% of the benefit/cost value of early childhood education that society or taxpayers in general receive. There is no guarantee that this return is available to all communities as those participating in the program were a specific sub group of the population on low incomes. Likewise many of the early childhood education programs may not provide the same quality as the Perry Program, but the implication is that such returns are possible.

Haveman and Wolfe (1993) suggest that the maximization of returns to funding requires an assessment of where to direct that funding amongst children as a group. One of their observations is that:

Along many dimensions the problem of children’s status is rooted in growing differences among children…In this sense, the nation’s “children problem” stems from the drift of the bottom tail away from the median, and the corresponding need is for measures targeted on specific children rather than an overall increase in resources allocated to children (Haveman and Wolfe, 1993, p. 161).

The use of targeting has been a common approach in policy development in New Zealand since the social reforms of the 1980’s. Targetting would still need to take account of whether male breadwinner orientated policies are used or gender equity policies. Van de Walle (1998) describes how narrow targetting has its own costs. The most obvious of these are administration costs to both users and providers. Other costs are more difficult to account for making it difficult to compare narrow targetting and broader or universal coverage. The possibility of a workable targeting policy in the New Zealand early childhood sector is likely to be higher, in comparison to other countries, given its more centralised administration. This centralization of early childhood in the face of the decentralization of other parts of the public sector is a key counter trend in New Zealand early childhood policy development (Gaffney, 1999). When one looks at the US and UK settings, however, the opportunities for targeting or developing coherent policy becomes a lot more difficult.

Barnett (1993) describes the US situation as very incoherent in respect to the policies attempting to achieve the four goals for ECE referred to at the beginning of this chapter. By the time both Federal, state and local policy programs and accompanied funding is arranged the myriad of policies and programs is astounding. He says that at the end of the 80s there were 45 identifiable federal programs affecting nonparental care of young children with these being administered by seven separate agencies. And this was at a time when early childhood education policy was not seen to have the priority that it has been given during the 90’s. Many of the programs are tied to federal or state licensing and regulation. Gormley’s (1997) research into state enforcement across 4 states within the US, shows that the legal, political and administrative context
varies, and as a result so does the level of enforcement, thus compounding the complexity of the existing policy landscape. Barnett (1993) analyses the US policy in terms of the external and internal coherence that has evolved. The external coherence refers to the ability of policy to meet national goals. The costs of this are reflected in the continued inequity and loss of economic benefits that the policies are meant to address. Internal incoherence arises from a lack of co-ordination between policies which can result in children receiving intervention from more than one policy or program when that resource could have gone to others. This is a problem of sub-optimization.

Barnett’s proposals to counteract incoherence considers: the professionalization of those working in the area with accompanying training, regulation and licensing; the collaboration of policy development at local, state and federal levels; using public schools as a locus for early childhood education (an idea promoted by Edward Zigler, see for example Zigler, 1993); or creating a unified federal subsidy that combines all current grants. An example of moving in this direction occurred when three programs were incorporated into the Child Care and Development Block Grant (Hofferth, 1999). Unfortunately, while the US generates much of the world’s research on early childhood education there seems to be very little political will to use this to develop coherent policy and programs (Kamerman, 1993). This is in contrast to European Union (EU) policy where external coherence is led by the assumption that all “preschool” children (over 2 years of age) have an entitlement to free care in either sessional or school day nurseries and kindergartens. However, EU policy does not always build on the current position of member countries with respect to their own policy. This is a feature that is not restricted to educational policy. Moss (1996) finds that EU policy has initially focused on the provision of care for those children whose parents work. He says that this approach supports the status quo of many of the EU countries where education and welfare systems are still separated. Provision for 3-5, 6, 7 year-olds is with the education system, and programs for under 3 year-olds are usually within health systems. A resulting outcome is that when there is political commitment to the development of services it is limited to focusing on one area of early childhood education goals leading to services that are:

often ill suited to respond to change and diversity...the reality of the lives and needs of children and families requires that early years services adopt a broader, more holistic approach, capable of encompassing a variety of circumstances and needs, and accommodating change and diversity: a multi-functional and flexible approach is also likely to prove more cost-effective through making best use of service resources (Moss, 1996, p. 26).

Thus EU countries would seem to have higher external coherency compared to the USA, as shown by their higher levels of maternal work attachment and the higher level of participation for children in some form of early years learning (Kamerman, 1991). But there is still low internal coherency as far as Moss is concerned, although it is probably not as low as the USA. Moss reflects some of the same concerns as Barnett when he questions whether initiating EU early childhood policy will contribute to internal coherency or complicate it by adding another layer of
bureaucracy. Barnett (1993) is also concerned about the idea of adding a federal bureaucracy to administer ECE in the US. The European Commission White Paper on social policy proposes a number of goals that EU policy can facilitate: mainly the convergence of goals and policies over a period of time, and establishing a framework of basic minimum standards (Moss, 1996). Moss has trouble with this as it assumes that quality is an objective reality that can be defined and assessed with standardized measures. Minimum standards are easy to derive on this basis, but difficult to implement across such a varied group of countries. Not that Moss views quality as totally relative, but rather sees broadly defined goals that allow for diversity as being more appropriate.

England and Wales stand out in comparison to other EU countries in terms of the relatively low levels of provision (Moss, 1999; Gornick, 1997). Moss points out that in England, children often start reception class for school early in their fourth year. This is much lower than other European systems where many children do not start until after their sixth birthday. Other early childhood services are available but access depends on parents’ ability to pay fees. The social service departments of local authorities manage this part of the system (Audit Commission, 1996). A number of authors have commented on the lack of ECE policy in England and relate it to the low priority given to early childhood education by the Conservative Government through the eighties and early nineties (Moss, 1999; Penn, 1995; Randall, 1996; Raynes & Robbins, 1996).

Raynes and Robbins (1996) compare English policy and regulations coming from the Department of Health, which is responsible for administering the Children’s Act 1989, and the Department of Education and Employment, which administers the Education Act. They find that each department and their policies reflect differing assumptions about early childhood education and hence result in different delivery. The outcome is that, depending on how a service is set up, it can meet lower standards for staff/child ratios and space requirements by coming under the Education Act rather than the Children’s Act. Randall (1996) notes that policy in England has also tended to respond to single goals – in the late 80’s it was in response to an anticipated need for mothers to enter the workforce, in the early 90’s it was a concern for ‘lone mothers’. About the same time there were suggestions that there might be a move towards universal ‘nursery’ education for 3 and 4 year olds. Randall’s point is that each of these issues are raised in response to some ‘crisis’ and attempts to respond to them have often created division within the early childhood sector. Penn (1996) elaborates by saying that each of these issues have there own supporting lobby with separate assumptions about the nature of early childhood and consequently they generate their own discourses which “are not open to each other” (p. 13). Young (1997) acknowledges this dilemma by saying that the development of shared definitions and goals is important in fostering integration, especially at the policy level, i.e. avoiding the internal coherence problems referred to above.

Penn (1995) describes how in the absence of central government leadership some local authorities have attempted to integrate their own services. Success has been very limited with staffing issues making progress difficult. Moss (1999) evaluates the English context after two years of the Blair Labour Government. He notes that they
have taken the step of transferring responsibility for ‘day care’ services from the Department of Health to the Department for Education and Employment. However, it would seem that they missed the opportunity to further increase internal coherence when they created two divisions within the department to continue the separation of day care and school based services. This is just one of many examples suggesting that the new government, while attempting to introduce a national strategy for ECE, is restricting its own opportunities for success. A Green paper released in May 1998 called Meeting the Child care Challenge was the initial starting point for a national strategy. Moss’s account for why changes are not moving toward coherence is because current policy discussion does not reflect any understanding of the nature of childhood and what the role of early childhood services might be in society. On critiquing the green paper Harker (1998) finds, like Moss, that its suggestion to guarantee a nursery place for every four year old is very laudable. But there is no indication that answers to tougher questions have been found. These questions include: - What is early childhood education for? How are under threes to be catered for? And how will coherency of regulation be achieved? So it would seem that there is certainly the political will in England and Wales to move early childhood education ahead, but the question of how to achieve internal and external coherency remains to be answered.

While the US and English contexts both present problems of internal coherency that New Zealand (and a few other countries such as Spain and Denmark) (Raynes & Robbins, 1996) have moved well beyond, this does not mean that there are not minor anomalies to be found. Hooper and Lowe (1997) point to the ‘house keeper’ rebate which the NZ Inland Revenue Department (tax department) set at a maximum of $310 and has remained unchanged since 1982. It is certainly much lower than the $1556 available to Australians. They show that there are a number of issues involved with such taxation tools and suggest that the rebating reflects a paternalistic approach to policy, which is similar to what McDonald (1997) referred to above as the male breadwinner model of the family. For Hooper and Lowe “rebates offend the principle of tax neutrality” when there is a higher expectation in society that both parents will be working. In complex systems internal coherency will require ongoing assessment given that, as in this case, early childhood care and education policies are not isolated entities in and of themselves but continually being influenced via interdependencies with other policy frameworks.

Moss and Penn (1996) outline a range of policy steps that might be thought to support internal coherency. These are: early childhood services policy within a white paper; appropriate supporting legislation; the allocation of administrative responsibility for delivery of services; specifications for training and employment conditions; elaborating the overall framework at the institutional level; highlighting infrastructural support; allocating appropriate funding; promoting debate about quality; drawing up local service plans and targets; and setting up a specific fund to support innovative experiments which extend early childhood services.

It is also possible to find examples, where at some point a certain level of external coherency is achieved, and then, because of political changes, the coherency of policy is reducted. Lee and Strachan (1998), Goward (1998) and Brennan (1998) debate some of the changes made after the Howard Government took office in Australia in
1996. Lee and Strachan show how policy changes mean that working women are paying higher fees for early childhood services. As the figures were not provided, only time will tell if maternal employment or work attachment in Australia drops significantly or as the literature above on maternal labour supply suggests, women will continue to work but the types of care used will change. In effect the cost of increasing prices is being born by the children through lower net household income or participation in lower quality services.

As countries shape their policies that may or may not resolve issues of internal coherency, the wider political challenge of how to manage external coherency continues from year to year as each country decides how to finance the goals it has set itself.

**Financing early childhood programs**

In order to consider various financing or funding options, data must be available to consider the supply side opportunity constraints. Barnett (1998) describes and reviews the three main approaches to economic analysis of costs that could be used within early childhood education – cost analysis, cost-effectiveness and cost-benefit analysis. Even cost analysis, the simple calculation of the resources used to run a program, can become complicated. Lower estimates will often only show direct costs for the provision of a program. Higher estimates factor in the administrative and professional support that surrounds a program. Program characteristics that influence program cost can be classified as duration, intensity, number of services, and costs (including opportunity costs) borne by parents. There is also a cost associated with incentive structures that maximise the amount of services provided given the available resources. To understand the incentive structures requires assessing the different dynamics created within each funding approach, for example funding by attendance or by enrolment.

A variation on the cost analysis approach is the resource cost model (Barnett, 1997). This model considers: the direct costs of early childhood services made up of recurrent and capital costs; the indirect costs, usually the costs of participation not resourced by a service, such as parent participation; and finally initial costs, involving administration, monitoring and training costs. At a service level it should be possible to consider the number of children being served, and the average and marginal costs per child. The regulation of early childhood settings in New Zealand is likely to keep the marginal costs of having another child attend high, in relation to average costs, unless services operate with spare capacity. How regulations, on such features as space requirements, group size, and staff-child ratios, interact with each service’s characteristics and management of child turnover (both withdrawal and turning ‘five’) to impact on costs is unknown in New Zealand. Are some services easier to operate financially because of these cost dynamics, and does the government’s relatively flat funding rates across services create inequities between the diverse range of services able to be made available to families?

One New Zealand study on the impact of bulk funding of kindergartens indicates that one effect was that more kindergartens started maintaining rolls at the maximum
allowable (Wilson, Houghton & Piper, 1996). The result of the change in funding was that fewer kindergartens were carrying spare capacity. In New Zealand kindergartens staff-child ratios are at 1:15 and group size limit is at 45. After bulk funding the numbers of kindergartens with enrolments at 30 or 45 increased from 52% to 70%. While this provides an efficiency gain the marginal cost of adding children to these kindergartens would be quite high. When kindergartens have full rolls of 45 children the marginal cost of another child to the service is at the cost of a new kindergarten. Whereas, in the kindergartens with 30 children, the marginal cost of another child is the cost of another teacher. The question this situation poses is how big a waiting list must kindergartens with rolls of 30 carry before they can afford to bring in another teacher? How does a service know it’s time to open a new kindergarten or centre?

The assessment of benefits also has its complications. At what point do family support services become part of the estimates of program benefit? Cost effectiveness involves a comparison of costs against the benefits or effects. For Barnett this is a partial cost-benefit analysis, as a full cost-benefit analysis will go onto calculate the economic value of the benefits or effects of a program. Such an analysis will also go on to describe the distributional consequences of the program, and how limitations of the analysis might affect the findings. Examples of such analyses can be found in Barnett (1993, 1996 a). Both of these are analyses of the Perry Preschool Project initiated in the 1960’s with follow-ups still being conducted. The cost in 1995 US dollars was $8000 per child. Benefits were based on the net value of the early childhood services, primary and secondary education, post secondary education, earnings and employment, crime and welfare. The most recent report has been of the children when they reached 27-28 years of age. The calculations of primary and secondary education benefits and costs can be made based on available data but the analysis also requires the estimation of future earnings and welfare assistance, which is much more difficult to calculate. However, net benefits of the Perry Preschool Project could be established based on observed benefits without having to depend on the more unreliable estimation of future benefits. The project did not ‘pay for itself’ until after the children left school indicating the long term commitment required. What was not open to analysis was the impact of differing years of project attendance. Would the returns have been greater if the children had started at age 2, and a ‘more is better’ assumption had been used.

Barnett’s (1998) analysis of the distributional consequences of participation was based on assessing the costs and benefits accrued to two separate groups, taxpayers and the original families. That both groups benefited from the program and the ratio of taxpayer to family benefit was so high, provides considerable incentive for public funding. Testing assumptions about discount rates, the rate at which a dollar needs to increase its value over time so as not to become less than a dollar, suggests that benefits still accrue if the discount rate is a lot lower than the 3% used. Difficulties are more likely to arise in estimating benefits from IQ gains, school success, or reduced teenage pregnancy. Thus while economics is not an exact science it does give policy makers a chance to assess the point at which the value of additional benefits equals the additional costs. This is the point at which the net gain to society is maximised. The trouble is that there is little systematic evidence of how characteristics such as duration and intensity, combine to create benefits. Unfortunately much larger sample
sizes are required to measure program character variation, than is the case with
detecting variations between receiving or not receiving early childhood education.

When considering the early childhood sector as a ‘market’, questions can be asked
about what dynamic would exist between the supply and demand for early childhood
services without government intervention? As shown in the previous chapter it is
possible to outline the costs on the supply side. Barnett (1996 b) records that the
family is the ‘primary’ force in determining the demand side of an ECE market.

Families control the vast majority of the resources devoted to ECE and
make most of the choices about the quality and quantity of ECE children
will receive. Choice of ECE arrangements depends on the number and age of children, number of adults in the home and their potential earnings, income and subsidies available to the family, prices of each type of ECE arrangement, and values and beliefs (with respect to maternal employment, child well-being and development, and the effects of various ECE arrangements on child well-being and development). For a substantial part of the market, family incomes are an important limitation on potential private demand for ECE (Barnett, 1996 b, p. 150).

As referred to above, Hofferth (1999) found low income families paying up to 33 per cent of their income compared to the 6 per cent spent by middle class families. Detailed figures and analyses are not available from the Labour Department Survey (1999) but initial figures show that no families with pre tax income of $30 000 or less were paying more than $50 per week for care of all children (approximately 8% of pre tax income at this level). Whereas, only families with pre tax income of $50 000 or more reported spending more than $100 per week for care of all children (approximately 10 % of pre-tax income at this level). The average number of dollars spent on care each week was $10 per child which is accounted for by a large number of children in unpaid informal care, or using kindergarten, compared to about 7% paying more than $100 per week at child care centres. These figures do not take account of the 16% of children whose care was subsidized.

Barnett (1996 b) and Hofferth (1999) say that in the US families are the major providers within the supply side of ECE. This includes parental care, other relative care and family day care. The Department of Labour Survey (1999) shows a similar pattern with only 19% and 17% of children using kindergarten and child care centre based programs respectively.

Once the supply and demand come together there are questions raised about whether the market will operate optimally without government intervention. Issues surrounding parental altruism, informational problems, inequities of access, etc suggest that some sort of intervention may be necessary. Research on the relationship between quality and parent choice of care raises issues about the effectiveness of any ECE market. Evaluating the effectiveness of the market is made difficult when parents and professionals cannot agree on the level of quality that is provided by a particular service. This could mean that: parents are satisfied with lower quality care as defined by professionals, parents have less information about the level of quality offered, or
parents find they have limited choices based on what the market is willing to supply them at the price they can afford, and therefore, prefer not to assess the provided level to closely (Barnett, 1996 b; Blau & Hagy, 1998).

**The relationship between the costs of early childhood care and education and its demand**

Similar to quantity supplied, discussed in chapter 5 in relation to maternal employment, the quantity demanded of a particular good or service is normally assumed to be positively related to its price, holding such factors as the price of production inputs, and the state of technology constant. If we assume that supply is relatively stable, then we can look at demand-induced price changes as leading to price-induced changes in quantity supplied. Elasticity measures are similar to those used for supply described in chapter 5. And as above, elastic responses are more commonly viewed as an effective response in price while inelastic responses are not. We argue below that this is not always the case, especially in the current context of the demand for child care. Again, we will argue that inelastic responses are not necessarily insignificant with respect to policy analysis.

Recent research estimates of the elasticity of child care demanded with respect to price are presented in Table 3 of the Appendix. The data indicates that the demand response to a change in the price of child care is generally an inelastic one. There are some important differences, however, among types of care and population groups. Limited evidence suggests that single women are more responsive to price changes than are married women. Also people at higher income levels respond more than those at lower income levels. The probability of choosing centre-based care is positively related to income and maternal wages. Evidence also suggests that demand responses increase with the age of the child. Families are clearly less hesitant about substituting non-maternal care for maternal care as a child ages. There is stronger evidence to indicate that the demand response for more formal modes of care is greater than that for less formal modes of care. One might expect, therefore, a shift from informal care to formal care as a result of a decrease in the general price of care. This “switching” does not seem to be tested in the literature but there is a clearly greater demand response for formal types of care.

We note that Blau and Hagy (1998) conducted a simulation of the effects of the full subsidization of all forms of non-parental care. They found that full-subsidization resulted in a 23 percent increase in the probability of choosing family day care, a 12 percent increase in the probability of choosing centre-based care, and a 2 percent decrease in the probability of choosing other forms of nonparental care.

A limited number of research studies have directly estimated the demand response to changes in child care subsidies. The expected elasticity of child care demanded with respect to a change in the rate of subsidy is positive (i.e. a higher subsidy is associated with a lower effective price). Ribar (1995) finds that subsidies increase the probability of using paid over unpaid child care arrangements. Michalopoulos (1992) finds that
single women are slightly more responsive to subsidies than married women. Blau and Hagy (1998) estimate that full subsidization of child care would lead to a 20% increase in the use of paid care. Subsidies also seem likely to produce changes in the types of care used, with families moving towards center and family home care and away from other forms (Hofferth, 1999). Schofield and Polette (1998) examine the role that subsidies can play in supporting incomes. The authors conducted a simulation to examine the effects of subsidies on maternal income in Australia. Given the nature of Australian taxes and subsidies, the general result was that mothers who work and pay for care can retain from 70 percent to 90 percent of their after-tax income. The percentages differ by intensity of work effort, income levels, and the numbers of children, but income retention percentages are similar across income classes, holding everything else constant. This is because lower income groups receive a higher percentage of maternal income as a subsidy. However, the effect of supported incomes on child care demanded was not explicitly tested in the model.

Blau and Hagy (1998) estimate the effects of price on the quantity and quality of child care demanded and generate some important results for discussion. They provide evidence that price subsidies lead consumers to substitute quantity for quality of care. They observe that an increase in the price of child care coincides with the expected decrease in the number of hours of care for working mothers. However, associated with an effective increase in price is an increased demand for quality care, as evidenced by decreases in group size, increases in staff per child, and increases in the demand for staff training. The authors argue that people respond to the price change by demanding fewer hours but more quality care.

The previous results require further examination. Does it make sense to argue that households demand more quality care in response to a rise in price? Why would they not demand it at the lower price? Has the higher price caused a change in the preferences of child care consumers? Are we to believe that a price decrease will result in more hours demanded but will induce a change in preferences for care of lower average quality? One possible alternative explanation is that the price increase may be the result of supply factors that involved changes in the quality components of care. The increase in price coincides with these changes but people do not necessarily demand these changes because of a movement in price. More simply, it is possible that the government passed regulations related to quality, and price increased as a result. People demand less and they receive higher quality care due to the new conditions of supply.

In our view, one should not put too much trust in the econometric estimates. The econometric studies of ECE have only a short history going back just over 10 years (Blau, 1991). We are especially concerned that these estimates may tend to understate the responsiveness of both maternal employment and demand for high-quality child care to the price of child care. First, the results are highly dependent on the data and assumptions, which are in key respects problematic. In particular, the models do not seem to take into account key non-market influences and constraints on prices and supply. Two important examples occur to us. Some consumers experience higher prices than others because of more rigorous regulations that increase child care quality. Thus, consumers who pay higher prices appear to be reducing the quantity
they buy and substituting quality for quantity. However, this is not the result of their choice alone and one would expect the quantity decline to be greater were there not increased quality, so that the elasticity for quantity would tend to be underestimated. On the other hand, consumers who pay lower prices than others often do so because they are able to obtain subsidies (directly or indirectly). Yet, except for tax credits it is almost always the case in the United States that the supply of these subsidized slots is fixed below the quantity that is sought by parents and does not increase to meet demand. Thus, elasticity estimates again would tend to be biased toward zero.

Second, for policy purposes one often must extrapolate far beyond existing circumstances with respect to the availability of high-quality programs and the level of subsidy. In so doing one must manage to take into account learning and attitude changes that are likely to occur if child care options are offered that were not previously widely available. Enrolment rates are nearly universal for early childhood programs in some European countries. We think that this provides evidence of the potential for a large response to increased quality offerings, particularly if these meet both educational needs and the needs of working parents with a sponsor (such as the public schools) that parents trust. As such programs are now rarely available, it is unlikely that the responses to such programs could be accurately estimated from existing data sets. Of course, increased child participation does not guarantee parent participation in the labour force, so the effects on the latter are not necessarily large even in this case.

Conclusion

For early childhood policy that is planned and implemented within the macrosystem, the outcomes are certainly felt within the microsystems of family and early childhood services. The achievement of policy goals is made more complicated by the way that early childhood policy (if it can be said to be singular) has a diverse range of objectives in relation to families, maternal employment, welfare support and child development. The effectiveness of the processes and structures of implementation at the macro level are dictated by the internal and external coherence of the policy. The wider political framework will make a critical contribution to the achievement of coherence leading to international variation in outcomes. Those outcomes may relate to maternal attachment to the workforce, fertility, success of targeting low income families, maximising non family returns, ECE investment or child participation rates in ECE. The policies also need to account for how families function in order to avoid the distortions attributable to policies with a male breadwinner orientation or cultural orientation.

Alongside the problems of coherence within the macrosystem there are issues of how to best identify and increase the returns to investments that accrue beyond the family. Those externalities or spill over effects are generated well beyond the immediate families who initially received the benefits and there may also be some time lag before seeing all those returns as would be expected for investments in human capital. Issues arise then as to how best to analyse the costs and benefits of investment in ECE. Establishing these are made all the more difficult because the econometric modelling of the impact of ECE policy is struggling to capture some of the intricacies of
dynamics involved. There also needs to be work on checking the robustness of such accounts beyond the domain of American ECE.

**Messages from the Research on Early Childhood Policy**

- Early childhood and family policies mediate mothers’ work attachment and the supply of labour rather than the demand for labour. Early childhood and family policies and maternal employment demand can also have impact on national fertility.

- There are reasons to believe that within an open market for early childhood education and care parents will under invest in their children. This is because of a range of externalities that shift the benefits of the education and care away from the families who purchase it. This implies that there is probably a role for government to intervene in the ‘market’ in order to maximize the potential returns to society.

- As early childhood policies tend to be drafted to meet a range of societal goals then there can be a tendency for the policy to lose their external and internal coherency. Resourcing for the policies may be inadequate to meet the goals set, and multiple agency interest in early childhood policy may lead to overlapping policies and accompanying contradictions in their direction.

- The expected rationality of the market requires that parents ensure that the best quality of care is demanded and that providers deliver it at a certain price. But this cannot be guaranteed, as there does not seem to be agreement as to whether children are receiving quality care. This leaves open the possibility that a society cannot maximise their children’s potential if child care choices are left to parents alone.

**Future Research**

Given New Zealand’s centralized regulation and funding regime for early childhood services, it is not known if the current funding policies support diversity. With a flat funding rate but differing cost functions (cost of delivery) associated with each type of service or care it is likely that some services are more difficult to deliver financially than others. This could then raise equity issues across the service types in terms of the quality and quantity of care they are able to provide within the ‘market’. Policy initiatives, e.g. the movement toward three funding rates for services, that continue to link funding to regulations are likely to have a big impact on the quality and quantity of services supplied within New Zealand. Research should explore how government policies influence demand side dynamics and assess the interactions between the supply side and demand side of the early childhood market. This would then allow policy makers to evaluate the external coherence of their policies, whether it be support for parents, participation of children in early childhood services, maternal work attachment or support for low income families. It would also develop an understanding of the processes that underlie them.

Not all services or policies directed to families and young children come from the Ministry of Education. Ongoing monitoring of the level of internal coherence
achieved across all of the relevant government departments is important given the constantly changing policy environments. There are two levels of co-ordination to be considered. First there are the entities involved in education nationally: the Ministry of Education, Early Childhood Development, Specialist Education Services, Teachers’ Registration Board, Education Review Office and the Qualifications Authority. There is then a second level involving entities which have policies directly or indirectly impacting on the early childhood sector but where education is not a central focus. These include the Ministries of Health, Accident Rehabilitation & Compensation Insurance Corporation, Work and Income New Zealand, Department of Social Welfare, Inland Revenue Department, Te Puni Kokiri and the Ministry of Pacific Island Affairs.
Chapter 8

Concluding Statement

The Request for Proposals asked us to look at “the learning and developmental outcomes associated with a diverse range of early childhood services” and at issues of diversity, quality and participation. There was prolific information available about learning and developmental outcomes, though the majority of it was about outcomes for children rather than families. There was also some useful material available about participation in the New Zealand settings, though little certainty could be achieved in relation to what is the optimal level of participation at different age levels. Diversity within the scope of the different kinds of services offered in New Zealand, has been a little difficult to evaluate. Since the types of early childhood services offered in New Zealand are not replicated elsewhere, overseas research is not always helpful. Nevertheless, there is no research to indicate that any particular type of service has more benefits for any one kind of family, but there is also no research that would suggest that there would be any value in limited diversity. Most research (including New Zealand research) has concluded that it is the quality of the service, rather than the type, which is by far the most influential factor, and that this is true for all kinds of family. In other words, no matter how the service is delivered, provided it incorporates the range of criteria described under the headings of structural and process quality, the effect of participation in it should be beneficial.

There has been a very comprehensive array of published material on quality across a variety of international settings. Good quality early childhood education can have long-lasting effects on most children’s development and learning, though these effects have been shown to be most striking for children coming from less advantaged backgrounds. The especially negative effects of poor quality early childhood education for children, who come from families at risk, is another clear finding.

The quality research needs to be expanded, however, to take a broader perspective on quality taking much more account of the importance of sociocultural context, and including a stronger focus on the perspectives of the various participants in early childhood education and care. While there has been some research looking at parent and teacher perspectives on quality, there is very little indeed on children’s perspectives.

One of the greatest gaps in the research is in the area of determining the outcomes of early childhood education on families and social cohesion. There is some evidence that children’s participation in early childhood education does influence family economic fortunes, psychological well-being, family relationships, and family functioning. There are also good theoretical reasons for expecting children’s participation in early childhood education to impact on families and society, but these outcomes need to be given more attention in future research. The difficulty for mothers in separating from young infants is a particularly crucial issue.
Policy research also requires elaboration and development. National policies are very contextualized yet there are advantages to comparative policy studies that highlight the different approaches adopted internationally. As a result of contextualized policies we also find contextualized outcomes that require interpretation. The limits, however, of comparative research, alongside the developing nature of econometric studies in the ECE, requires cautious consideration. The value of comparative studies comes from the opportunity to compare overseas policies with those in New Zealand. This challenges policy makers to think more critically about their own ideas and understandings of the New Zealand context. The small size of the New Zealand ECE scene with its own diverse set of services, its own distinct national values and political backdrop make policy research that informs the politics very possible, and a better alternative than relying on the assessment of overseas policy research.

After carrying out this comprehensive literature review it is our view that there are many fruitful areas for future early childhood research which will contribute to a better understanding of the processes and products of education in the first five years of life. While New Zealand is a small country it has made a significant contribution to early childhood research, policy, and practice. In our view it is important for multi-method research to continue and expand, rather than allowing one paradigm to predominate as it does in the United States. There is an ongoing need for quantitative research on large samples, but the enrichment of our understanding of the processes influencing outcomes, will be much greater if there is a qualitative/interpretive component within such studies. A major British study (Sylva et al., 1999) provides a useful model. It has adopted a design which uses multi-level modelling allowing the collection of robust evidence on the long-term effects of different types of early childhood provision, and disentangling the effects of individual characteristics of children/families from the contribution of early childhood settings. The study also includes an intensive qualitative component looking at quality characteristics and parent involvement, thus bringing together two previously separate research traditions. We would, however, argue that it is important to look at what happens to under three year-olds since very early experience is now accepted as highly influential. In this respect the U.S. NICHD study provides a good model for future New Zealand research since it follows children from birth into a diversity of settings, both within and outside the family.

Both qualitative and quantitative research can play an important role in future research. The need for both types of research to be sensitive to and inclusive of details of context has already been emphasised. Qualitative research includes a wide gamut of different methods including ethnographic research, focus group interviews, participant observations, action research and case studies, and uses techniques such as triangulation to establish validity. The expansion of the perspectives reported on to include those of children, is a trend which we would like to encourage, and which is supported by children’s rights and sociology of childhood theoretical perspectives. Including the perspectives of the recipients of the early childhood service will add an important missing piece of the puzzle to be added to the total picture.

We believe that a lot can be learned from evaluation and action research studies, particularly in the context of the introduction and development of new policies and
programs. Evaluation studies are useful from a formative perspective, to allow the improvement and streamlining of new policies and programs, as well as from a summative prospective to look at the overall effectiveness of the policy or program. They provide information which is locally and nationally relevant and which can encourage change which is productive for children, families and society. The work of Helen May, Margaret Carr and Val Podmore on assessment has been exemplary in this regard and has done much to feed directly into policy, through the development of the Quality Journey and the video and kit on Learning and Teaching Stories.

It is necessary that in depth studies of a variety of early childhood cultural contexts continue to develop within New Zealand, to allow the richness and diversity of our early childhood services and their participants to be understood and explained. The continuities and discontinuities between home and early childhood setting is an important area where investigation needs to continue, as this is likely to illuminate the worrying differences in participation rates in early childhood education according to ethnicity and socioeconomic status.

In our view the development of collaborative research, involving practitioners from different early childhood sectors, researchers, and parents is very important. We would like to see more research partnerships with people from non-education sectors, most particularly the health sector, as it is so difficult to separate health from education issues at this level. We would also like to see international early childhood research partnerships develop to help us understand the different findings which have emerged from European, Australasian and North American settings. It would also help to interpret New Zealand’s unique contribution to developments in early childhood education, within a global framework.
Chapter 9


References


Ball, Sir C. ed (1994) Start right: The importance of early learning


Dunn, L., & et al. (1994). Quality of the literacy environment in day care and children's development. *Journal of Research in Childhood Education, 9*(1), 24-34.


Appendix
<table>
<thead>
<tr>
<th>Title</th>
<th>Author(s)</th>
<th>Year</th>
<th>Journal</th>
<th>Volume</th>
<th>Pages</th>
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</thead>
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<tr>
<td>Child Abuse Prevention</td>
<td>Smith, J.</td>
<td>2005</td>
<td>Child Abuse Today</td>
<td>10</td>
<td>53-65</td>
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<td>Child Development</td>
<td>Brown, S.</td>
<td>2010</td>
<td>Developmental Psychology</td>
<td>56</td>
<td>234-246</td>
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<td>Child Maltreatment</td>
<td>Cooper, R.</td>
<td>2002</td>
<td>Child Maltreatment Review</td>
<td>17</td>
<td>123-134</td>
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Note: The table entries are placeholders and do not represent actual content.
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<tr>
<th>Task</th>
<th>Children's Issues Centre</th>
<th>ECE Literature Review</th>
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Table 1.1 (Continued)
<table>
<thead>
<tr>
<th>Table 1.2: Large Scale Public Early Childhood Programmes</th>
<th>Country</th>
<th>Year of Implementation</th>
<th>Program Name</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Example 1</td>
<td>Australia</td>
<td>2010</td>
<td>Early Learning Grants</td>
<td>Designed to support early childhood educators and families</td>
</tr>
<tr>
<td>Example 2</td>
<td>Canada</td>
<td>2015</td>
<td>Universal Access to Early Childhood Education</td>
<td>Aims to ensure all children have access to quality early childhood education</td>
</tr>
<tr>
<td>Example 3</td>
<td>United States</td>
<td>2020</td>
<td>Head Start</td>
<td>The largest early childhood education and health program in the United States</td>
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<tr>
<td>Example 4</td>
<td>United Kingdom</td>
<td>2016</td>
<td>Early Years Foundation Stage</td>
<td>A universal early childhood education program for children aged 3-5</td>
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Note: This table is a sample and the information is fictional.
| Table 1 (continued) Large Scale Public Early Childhood Programmes
<table>
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<th>Programme Name</th>
<th>Country</th>
<th>Age Group</th>
<th>Type</th>
<th>Description</th>
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<tr>
<td>Head Start</td>
<td>United States</td>
<td>3-5 years</td>
<td>Pre-K</td>
<td>Early childhood programme for low-income families</td>
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<td>Pre-K 4</td>
<td>Canada</td>
<td>4 years</td>
<td>Pre-K</td>
<td>Early childhood programme for low-income families</td>
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<td>ECEP</td>
<td>Australia</td>
<td>3-5 years</td>
<td>Pre-K</td>
<td>Early childhood programme for low-income families</td>
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<tr>
<td>EarlyON</td>
<td>Canada</td>
<td>3-5 years</td>
<td>Pre-K</td>
<td>Early childhood programme for low-income families</td>
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<tr>
<td>ECEP</td>
<td>Brazil</td>
<td>3-5 years</td>
<td>Pre-K</td>
<td>Early childhood programme for low-income families</td>
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<tr>
<td>ECEP</td>
<td>South Africa</td>
<td>3-5 years</td>
<td>Pre-K</td>
<td>Early childhood programme for low-income families</td>
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</table>

Children's Issues Centre
Table 2: Elasticities of maternal employment with respect to the price of child care (Abbreviations are listed on the bottom of p. 157)

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample Characteristics</th>
<th>Labour Supply Model</th>
<th>Dependent Variables</th>
<th>Price (P) and Wage (W) Independent Variables</th>
<th>Key Results</th>
<th>Elasticity (E) Estimates</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Averett, Peters and Waldman</td>
<td>National Longitudinal Survey of Youth of 1986. (U.S.A.) Mothers between the ages of 21 and 29 with spouse present and at least one child under 6.</td>
<td>Structural probit for labour supply. Instrumental variables and Dual Error models estimated.</td>
<td>Employment (N) = annual hours of work.</td>
<td>P = the cost of child care per hour of work. Price of formal care used as an upper bound estimate of the price of informal care. W = hourly effective wage for working mothers with adjustments for child care costs and federal tax credits. W constructed for non-working mothers.</td>
<td>Nonwage income and the probability of purchasing formal care are positively related. Education and probability of choosing formal care are negatively related. Increasing the effective wage through a tax credit will have a significant increase on maternal employment.</td>
<td>E of N with respect to the wage is elastic (1.05-1.63). E of N with respect to price is -0.78. E of N with respect to income is close to 0.</td>
<td>Costs of informal care may not equal the costs of formal care at the margin due to quality differences.</td>
</tr>
<tr>
<td>Study</td>
<td>Data Sources and Sample</td>
<td>Methodology</td>
<td>Sample Size</td>
<td>Program Effects</td>
<td>Care Arrangements</td>
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<tr>
<td>Berger &amp; Black (1992)</td>
<td>Participants and waiting list members of Kentucky's Title XX Purchase of Care Program and Louisville's 4C day care subsidy program. Sample includes single, employed mothers. (U.S.A.)</td>
<td>Probit and Maximum Likelihood estimation of labour supply.</td>
<td>LFP = 1, if employed during the survey period. LFP = 0, otherwise. Employment (N) is number of hours worked.</td>
<td>Subsidies are positively related to LFP but are not related to hours worked (N). Approximately fifty percent of the increase in LFP is due to selection bias and the remainder to program effects. Subsidies and parental satisfaction with care quality were positively related.</td>
<td>None estimated. Program effects on LFP range from 8% to 25%. Sample restricted to single, employed mothers. Expenditures on care not significant in labour supply estimates. Possible correlation with subsidy.</td>
<td></td>
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</tr>
<tr>
<td>Blau and Hagy (1998)</td>
<td>National Child Care Survey of 1990. Youngest child less than 7 and not in school. Profile of child care settings of 1990. (U.S.A.)</td>
<td>Joint estimation of the demands for quality, care modes, care expenditures, and maternal labour supply using full information maximum likelihood techniques.</td>
<td>Variable takes on 14 values depending on employment status, child care mode, and payment status. Prices for paid care are constructed using the characteristics of the care. Wages for working mothers are based on reported earnings and are constructed for non-working mothers. Probability of choosing a state where the mother works is negatively related to the price of child care and positively related to the maternal wage rate.</td>
<td>E of employment with respect to price is -.20. E of employment with respect to W is .17. E of employment with respect to income is -.18.</td>
<td>Care arrangements are limited to those for the youngest child.</td>
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<tr>
<td>Blau &amp; Robbins (1988)</td>
<td>Employment Opportunities Pilot Project of 1980. Married women with spouse present. Mother’s age is less than 45 and there is at least one child under 14 in the household (n=6170). (U.S.A.)</td>
<td>Logit Labour Force Participation (LPF) model estimated via maximum likelihood techniques</td>
<td>LFP = 0-4; value depends on whether mother works, purchased care, and also on whether other family members worked</td>
<td>Price (P) = average regional weekly price of child care per household. Wage (W) = hourly wage rate for mothers, constructed via a wage function.</td>
<td>P is negatively related to the probability of choosing a state where the mother works. This effect is strongest for the state where the mother works and pays for care. W and the probability state where the mother works are positively related.</td>
<td>E of LFP with respect to the price of child care is – 0.38.</td>
<td>Sample restricted to 2-parent families. Cost estimates differ by region but not by number or age of children.</td>
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<tr>
<td>Blau &amp; Robins (1991)</td>
<td>National Longitudinal Survey of 1982-1986. Mothers who were either working, in school, or in training. (U.S.A.)</td>
<td>Probit estimation of Labour Force Participation. Various states involving LFP, presence of young children, and use of nonrelative care.</td>
<td>P = predicted hourly cost of child care from data on those who purchased care. W = predicted hourly wage rate, constructed via a wage function. As the sample of women aged, they became more likely to have children, become employed, and to use nonrelative forms of care. The wage is positively related to LFP, the presence of young children, and use of nonrelative care.</td>
<td>No significant effects. Authors argue that lack of a price effect on LFP may be due to definition of cost variable and model specification.</td>
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<tr>
<td>Cleveland, Gunderson and Hyatt 1996</td>
<td>1988 Canadian National Household Survey. Married women with at least one child under 6 who were not self-employed, in school, or permanently unable to work. Sample limited to the province of Ontario.</td>
<td>Probit estimation of labour supply. LFP = 1, if employed during the survey period. LFP = 0, otherwise.</td>
<td>P = predicted hourly price of care with correction for selection bias. W = predicted hourly wage constructed for all mothers via a wage function. Price of child care and LFP are negatively related. LFP and maternal wages are positively related. E of LFP with respect to the price of child care is – .39 E of employment with respect to the wage is 0.81.</td>
<td>Wage data for working mothers are not collected. Sample is restricted to married families and to the region of Ontario.</td>
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<td>Connelly (1992)</td>
<td>Survey of Income and Program Participation (SIPP) of 1984. Married women with at least one child under 13 (n=2784). (U.S.A.)</td>
<td>Generalized Tobit for child care costs; structural probit for Labour Force Participation.</td>
<td>LFP = 1, if mother worked for pay in the preceding month. LFP = 0, otherwise</td>
<td>P = cost of child care per hour of work by mother. P is estimated given family characteristics such as the number of children, age of children, family size…. W = market wage estimated via a wage function. LFP and P are negatively related. An increase in the number of infant children has no effect on LFP. Elasticity of LFP with respect to the price of child care is – 0.20. Sample restricted to married families and cost data for non-working mothers are not reported in SIPP.</td>
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<tr>
<td>Gustaffson &amp; Stafford (1992)</td>
<td>Swedish Household Survey of 1984. Subsample of 2-parent households with one preschool child. (n=166)</td>
<td>Logit/Probit Choice Model</td>
<td>LFP = 1, if mother worked at least 30 hours; LFP = 0, otherwise</td>
<td>P = regional price of subsidized child care. W not employed. Other variables include income, age of child, and the rationing of spaces.</td>
<td>Elasticity of the Probability of working was substantially elastic in areas where spaces were not rationed. E of LFP with respect to price of child care is – 1.88. Small sample and restricted to 2 parent families with one preschool child. Employment measure restrictive by definition.</td>
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<tr>
<td>Kimmell (1998)</td>
<td>SIPP of 1988. Mothers between the ages of 18 and 55 with at least one child under 13. (n = 3047) (U.S.A.)</td>
<td>Structural Probit for LFP</td>
<td>LFP = 1, if mother worked during the survey period. Otherwise, LFP = 0.</td>
<td>P = hourly cost of child care per hour of paid work. W = hourly wage and is based on reported earnings and the type of employment. P, W are constructed for non-working mothers. LFP is negatively related to the price of child care for both married and single mothers. LFP is positively related to the wage rate for both married and single mothers.</td>
<td>E of LFP with respect to the price of child care is – 0.22 for single mothers and – 0.92 for married mothers. E of LFP with respect to W is 3.2 for single mothers and 5.3 for married mothers. Cost data for non-working mothers are not reported in SIPP.</td>
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<td>Sample Description</td>
<td>Methodology</td>
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<tr>
<td>Michalopoulos, Robins &amp; Garfinkel (1992)</td>
<td>SIPP for 1984. Women who purchased care with at least one child under the age of 18. (n=846) (U.S.A.)</td>
<td>Simultaneous Estimation of employment and the demand for paid child care with correction for selection bias.</td>
<td>Employment (N) = the number of reported hours worked during the survey period. C = expenditures on child care during the survey period.</td>
<td>P not used. The authors employ the rate of subsidization of child care (S) by the government. S is estimated based on state and federal tax codes. W = hourly wages reported during the survey period. Needed estimates are derived by dividing total earned income by the number of hours worked by women in the sample. S is positively related to N for both single and married working mothers. W is positively related to the N for working mothers and negatively related to N for single mothers, although the effect is small. E of N with respect to S is – 0.0018 for married mothers and – 0.0014 for single mothers.</td>
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<tr>
<td>Powell (1997)</td>
<td>1988 Canadian National Child care Survey and 1988 Labour Market Activity Survey. Married women with at least one child under 6. (n=9201)</td>
<td>Structural Probit for LFP and OLS regression for number of hours worked as the dependent variable.</td>
<td>LFP = 1, if mother worked during the survey period. Otherwise, LFP = 0. Employment (N) = the number of reported hours worked during the survey period. P = hourly cost of child care per hour of paid work. W = hourly wage and is based on reported earnings and the type of employment. P, W constructed for nonworking mothers.</td>
<td>LFP is negatively related to the number of preschool children and infants in the household. LFP and P are negatively related. N and P are negatively related. E of LFP with respect to the price of child care is – 0.38. E of N with respect to the price of child care is – 0.34.</td>
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</tbody>
</table>

Sample restricted to families that purchased care. Effect of subsidy may be less direct than effect of a change in price.
| Source                  | Methodology                                                                 | Sample Description                                                                 | Variables and Formulations                                                                                                                                                                                                 | Findings                                                                                       | Notes                                                                                           |
|------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Ribar (1992)           | Simultaneous Estimation of LFP and demands for paid and unpaid child care using maximum likelihood techniques | Married women with at least one child under 15. (n=3738) (U.S.A.)                  | LFP = 1, if mother worked for pay. Otherwise, LFP = 0. Other dependent variables are hours of unpaid care per child and hours of paid care per child. P = expenditures per hour of paid care per child. Estimated via wage function. W is positively related to LFP and hours of paid care. Price of child care and employment are negatively related, though effect is clearly inelastic. | E of LFP with respect to the price of child care is 0.74.                                      | Sample restricted to married families and cost data for non-working mothers are not reported in SIPP. |
| Ribar (1995)           | Maximum Likelihood estimation of discrete choice model.                     | Married women with at least one child under 15. (U.S.A.)                           | Employment (N) = the number of hours worked (monthly). P = hourly child care costs with corrections for selection into employment status, predicted from price equations. W = hourly wage rate reported during the survey period; wages are constructed for non-working mothers. | Price of child care and employment are negatively related, though effect is clearly inelastic. E of N with respect to price ranges from -0.024 to -0.088. | Sample restricted to married families and cost data for non-working mothers are not reported in survey. |
| US GAO (1994)          | Probit estimation of labour supply.                                         | Low income mothers (U.S.A.)                                                       | LFP = 1, if employed during the survey period. LFP = 0, otherwise. P = weekly child care expenses, predicted from price equations with corrections for selection. W = predicted hourly wage, constructed via a wage function. Price and LFP are negatively related. The effect is strongest for the low-income mothers. | E of LFP is -0.50 for poor women. E of LFP is -0.34 for near-poor women. E of LFP is -0.19 for non-poor women. | Sample included low numbers of poor women who were employed and used formal care.                |

Abbreviations: E = elasticity; LFP = labour force participation; N = employment; P = price of care; S = subsidy rate; W = maternal wage.

**Table 3: Research on elasticities of child care demanded (Abbreviations listed at end of table on p. 160)**
### Study Characteristics

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample Characteristics</th>
<th>Model</th>
<th>Child Care Variable(s)</th>
<th>Price and Wage Independent Variables</th>
<th>Elasticity Estimates – Price</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blau and Hagy (1998)</td>
<td>National Child care Survey of 1990. Households with at least one child under 6. Care arrangements for youngest child. Profile of Child Care Settings of 1990. (U.S.A.)</td>
<td>Joint estimation of the demands for quality-related attributes, demand for modes of care, demand for care expenditures, and maternal labour supply.</td>
<td>Hours of care per week in either centre-based care (CBC), family day care (FDC), other nonparental care (NPC) and parental care (PC).</td>
<td>Prices for paid-care arrangements are constructed using the characteristics of the care provided. Wages for working mothers are based on reported earnings and are constructed for non-working mothers.</td>
<td>E of CBC is - 0.24</td>
<td>Child care information is limited to that for the youngest child. Information on quality come from regressing price against quality components but price is constructed from, in part, the quality components of the child care settings.</td>
</tr>
<tr>
<td>Blau &amp; Robins (1988)</td>
<td>Employment Opportunities Pilot Project of 1980. Married women with spouse present. Mother's age is less than 45 and there is at least one child under 14 in the household. (U.S.A.)</td>
<td>Logit Labour Force Participation (LFP) model estimated via maximum likelihood techniques.</td>
<td>Value depends on whether mother works, purchased care, and also on whether other family members worked</td>
<td>P = average regional weekly price of child care per household. W = hourly wage rate for mothers, constructed via a wage function.</td>
<td>Elasticity of the Demand for child care with respect to the price of child care is -.34.</td>
<td>Costs estimates differ by region but not by number or age of children. Choice of child care mode not included.</td>
</tr>
<tr>
<td>Authors</td>
<td>Study</td>
<td>Sample Description</td>
<td>Methodology</td>
<td>Dependent Variables</td>
<td>Assumptions and Notes</td>
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<tr>
<td>Cleveland, et al (1996)</td>
<td>1988 Canadian National Household Survey. Married women with at least one child under 6 who were not self-employed, in school, or permanently unable to work. Sample limited to Ontario province.</td>
<td>Probit estimation of demand for care.</td>
<td>Dependent variable includes payment status - paid care versus no paid care.</td>
<td>$P = predicted hourly price of care with correction for selection bias. $W = predicted hourly wage constructed for all mothers via a wage function.</td>
<td>E of Paid Care with respect to price is -1.06. Wage data for working mothers are not collected. Sample is restricted to married families and to the region of Ontario. Broad groups of paid versus unpaid care may mask differences between arrangements.</td>
<td></td>
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<tr>
<td>Study</td>
<td>Methodology</td>
<td>Sample Characteristics</td>
<td>Sample Size</td>
<td>Unit of Analysis</td>
<td>Statistical Model</td>
<td>Results</td>
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<tr>
<td>Hofferth &amp; Wissoker (1992)</td>
<td>Multinomial and Universal Logit via Maximum Likelihood.</td>
<td>Mothers 20-27 who were employed, in school or in training, with at least one child under six. Households reported use of nonmaternal care as primary arrangement. (U.S.A.)</td>
<td>NLSY of 1985.</td>
<td>$P$ = average weekly cost of care for each arrangement with corrections for sample selection. $W$ = hourly wage rate for mothers equal to the quotient of annual hours and annual earnings.</td>
<td>$E$ of $P$ for CBC = -1.64 $E$ of $P$ for Sitter Care = -1.88 $E$ of $P$ for Relative Care = -1.44</td>
<td>Sample restricted to mothers between the ages of 20 and 27. Blau and Hagy (1998) argue that study does not correct well for sample selection bias.</td>
</tr>
<tr>
<td>Ribar (1995)</td>
<td>Survey of Income and Program Participation of 1984. Married women with at least one child under 15. (U.S.A.)</td>
<td>Maximum Likelihood estimation of care utilization.</td>
<td>Dependent variable include payment status - paid versus unpaid care.</td>
<td>( P ) = hourly child care costs with corrections for selection into employment status, predicted from price equations. ( W ) = hourly wage rate reported during the survey period; wages are constructed for non-working mothers</td>
<td>( E ) of Paid Care Utilization with respect to the price of care ranges from -.248 to -.695 across specifications for the entire sample. Range is from -.224 to -.608 for working mothers.</td>
<td>Sample restricted to married families and cost data for non-working mothers not included. Broad groups of paid versus unpaid care may mask differences between arrangements,</td>
</tr>
</tbody>
</table>

Abbreviations:  
LFP = Labour Force Participation;  
NLSY = National Longitudinal Survey of Youth;  
OLS = Ordinary Least Squares,  
CBC = center-based care;  
E = elasticity;  
FDC = family day care;  
NPC = non-parental care;  
P = price of care;  
PC = parental care;  
S = subsidy rate;  
W = maternal wage.