From Child Care to School: Influences on Children's Adjustment and Achievement in the Year before School and the First Year of School

Findings from the Child Care Choices Longitudinal Extension Study

Research Report to the NSW Department of Community Services

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EXECUTIVE SUMMARY

This report presents the findings of the Child Care Choices Longitudinal Extension study, a study of the child care and early school experiences of children in urban and rural New South Wales. Its focus is on elements of children's child care experience and the extent to which they predict children's adjustment and achievement in the year before they start school and in Kindergarten, the first year at school. In predicting child outcomes, the study took a social ecological approach and included characteristics of the children themselves, their families, as well as their child care history in seeking to explain differences in children's social-emotional competencies and difficulties, relationships with teachers and peers, feelings about school, approaches to learning, and achievements in early literacy and numeracy across the years before and after entry to formal schooling.

The report is based on information from six years of a longitudinal study of an initial 677 children and families recruited from long day care centres and family day care schemes in urban and rural New South Wales. There were approximately equal numbers of urban and rural families and girls and boys. At the time of recruitment in 2002, the age of the children ranged from 4 months to 4 years 2 months, with a mean age of 2 years 1 month.

Although recruitment approach was biased toward lower socio-economic status areas, with all long day care and family day care organizations in that area invited to join the study, the voluntary nature of participation meant that the sample contained a higher than anticipated proportion of parents with tertiary education (approximately half the sample). Families with higher levels of education also tended to be the ones who stayed in the sample over the years of the study with a final sample in Wave 6 of 348 families. This socio-economic and educational profile is consistent with the population using regulated child care in Australia.

The key research questions were:

1. What is the experience of families and young children in relation to regulated child care?

    1.1 What kind of child care arrangements involving regulated care and what combinations of care do families make for their young children?

    1.2 How satisfied are families with their children's child care arrangements?

    1.3 How changeable are young children's care arrangements?

2. What is the nature of young children's child care experience?

    2.1 What is the level and range of quality provided in their child care centres and family day care homes?

    2.2 What is the quality of the relationships children form with their child care providers?

2.3 What is the experience of families and children as children enter formal schooling?

3. What kind of transition experiences do parents report as helpful in preparing their child for school?

   3.1 What is the level and range of family involvement in their children's learning at home and at school?

   3.2 What kinds of child care arrangements do families make for their school-age children?

4. What is the nature of young children's experience of school?

   4.1 How do children feel about school, their teachers, and their peers?

   4.2 What is the level and range of quality provided in their classroom learning environments?

5. What factors best explain how well children are doing in their development at school and in the year before entering school?

   5.1 What are the predictive effects of child and family characteristics, early child care experiences, early development, and current patterns of child care/preschool attendance on achievement and adjustment in the year prior to school entry?

   5.2 What are the predictive effects of child and family characteristics, early child care experiences, early development, child care/preschool experience in the year before school, transition to school experiences, family support for learning at home and at school, and classroom quality on achievement and adjustment in the first year of school?

   5.3 What are the child, family, early learning, and child care/preschool factors that combine to best predict children's achievement and adjustment in the year prior to school entry and the first year at school?

Information was collected from a variety of sources: primary caregivers (generally the mother, but in some cases fathers or grandparents), carers and teachers in child care and preschool, teachers in schools and the children themselves. Parents were contacted annually for a telephone interview about their child, their family, and the child care arrangements they had made. In the first year of the study parents also completed a mail-back questionnaire. Each year, the carer or teacher of the study child was asked to complete a questionnaire on the child and the directors of long day care, preschools or family day care schemes were asked to complete a questionnaire about their service. At the same time, a member of the research team visited the child's main child care setting, preschool, or school for each child to collect observational data about the education/care environment and to assess children's development. Once children started school, the research assistants also interviewed the study child during the visit.

Child care was the focus of the study and very detailed measures were taken of many aspects of children's child care arrangements. The results of the study show that child care experiences, in addition to child and family factors, play an important part in preparing children for the transition to school. Aspects of children's child care history, in combination with child and family factors and, to a lesser extent current child care characteristics, predicted children's achievement and adjustment in the year before school and in Kindergarten (first year at school).

The key child care predictors of literacy achievement in the year before school were found in children's prior child care history. Attending formal child care/education settings for longer hours per week in the year before starting school and a history of attending more care arrangements a week were predictive of lower literacy scores. Child care factors were not significant predictors of achievement in numeracy in the year before school nor of literacy or numeracy in Kindergarten. The main predictors of achievement in both years were children's previous skills in literacy and numeracy.

Characteristics of children's earlier child care were an important part of the prediction of their adjustment in the year before school. Multiple care in the early years was associated with lower levels of prosocial behavior, and more changes in care arrangements were predictive of children having more socio-emotional difficulties, as rated by parents. Children whom teachers rated as having more behavioural difficulties had experienced more changes in care arrangements in their early years. More positive relationships with carers in children's early experiences of regulated child care were predictive of better teacher-child relationships in the year before school.

In the prediction of adjustment in Kindergarten, factors from children's child care history also played a part. Hours in child care was a frequent significant predictor of child adjustment at school. Longer hours in early formal care arrangements were part of the prediction of teachers' ratings of poorer academic adjustment, less prosocial behavior, more socio-emotional difficulties, as well as less closeness and more conflict in the teacher-child relationship. In contrast, longer hours of early informal care had a positive effect on prosocial behavior, as rated by parents, and on the teacher-child relationship at school.

More recent hours of care/education also impacted adjustment. Longer hours of care/education in the year before school were a positive predictor of prosocial behavior, as reported by teachers, but were negatively related to children's self-reported liking of school. Children whom teachers and parents rated as having more behavioural difficulties had attended longer hours of outside school hours care.

Children's experiences of multiple and changeable care were further factors explaining adjustment outcomes in Kindergarten. Multiple care in the early years predicted lower prosocial behavior at school-age as rated by parents. Multiple care in the year before school was linked to more conflict in the teacher-child relationship at school. More changes of care arrangements in the early years predicted children's lower ratings of liking school.

Children's relationships with carers and teachers in their early care experiences were important predictors of later outcomes. Positive teacher-child relationships in child care predicted closeness in the relationship with the teacher and more prosocial behaviour in Kindergarten, and the children reporting that they liked school. Poorer relationships with teachers in the early years of child care predicted more conflict in the relationship with the Kindergarten teacher and more socio-emotional difficulties.

Information from this study about how features of child care history can affect children's transition to school has implications for the regulation and quality assurance of child care. These are particularly important in the current context of reforms to the Australian quality assurance system. Australian data has long been needed to provide an evidence base for these important policy decisions.

The study is also important for parents. Many of the factors found in the study to predict more negative outcomes for children, particularly in relation to adjustment around the time of school transition can inform the choices parents make about child care in the early years, particularly around hours of formal and informal care and the use of multiple care. The current report is the first large longitudinal study in Australia to present such a large body of evidence for decisions to be made that will affect the welfare of young children in this country as they experience the care and educational settings we organize for them in their early childhood years.

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CHAPTER 1   INTRODUCTION

1.1   Background

In 2004, the Department of Community Services commissioned the Child Care Choices research team to extend a longitudinal study of over 600 young children and their families begun in 2002 in urban and rural areas of NSW. The initial 3-year study, funded through an ARC Linkage grant with the Department of Community Services as industry partner, had investigated the effect of multiple and changeable care arrangements on the development of young children. The findings of the first three years of the study suggested that: 1) children's development was linked to family factors more than to childcare factors, 2) multiple care arrangements (two or more care settings per week) did not have different effects on children's development from single care arrangements, and 3) changeable care arrangements (two or more changes over 12 months) were linked to behaviour problems in children as reported by their parents.

The focus of the Extension of the Longitudinal Child Care Choices Study moved away from multiple and changeable care arrangements to consider the effects of different aspects of care arrangements prior to school on the adjustment and achievement levels of children on entry to school. Transition to school is a major point of change in the lives of young children. It marks their entry into formal education. School demands of children a higher level of self-regulation of their behaviour and a more formal approach to learning than they have experienced previously. All of the children were recruited for the Child Care Choices study from regulated care settings (either long day care or family day care). They had already experienced one major educational transition in their move from home to child care. For them, starting school was a second major transition in their educational journey.

This study was designed to follow the child care history of the children in the study and to focus particularly on the year before they started school, and their first year in school. The study provided a unique opportunity to gather data on an annual basis on children's non-parental care from their early years into the first years of school. It offers a detailed view of the nature of the care arrangements made for young children in NSW before and during their first years of school, their transition to school experiences and their development during the early childhood years.

The research report presents findings from the Child Care Choices study on three main aspects of child care on children's school transition: type of child care, quantity of child care and quality of child care. It also presents findings on the relative contribution of family and child care factors to children's adjustment and achievement at school. Details of the design, participants and methods of the study are set out in the report along with a discussion of its findings in relation to the research literature and in relation to child care practice and policy.

1.2   Literature Review

Children's development: non-parental care and transition to school

Children's early adjustment to school plays a critical role in shaping their ongoing academic and socio-emotional competence. A myriad of studies have highlighted the significant role of prior-to-school experiences in shaping early school success. From a bio-ecological perspective (Bronfenbrenner & Morris, 1998), children's development is best understood when we consider the multiple contexts in which they operate, including both the family and non-parental care environments as well as individual characteristics of the developing child.

Entering non-parental care[1] and starting school are important transition stages for children's development. It is recognised that non-parental child care is an important part of the lives of an increasing number of Australian children (Australian Bureau of Statistics, 2003). Interest in understanding the effects of child care on children is therefore growing. Similarly, the influence of non-parental care and other factors on transition to school is an area of interest to early childhood researchers. Factors including family and child factors, peer relations and teacher-child relationships and their influences on school adjustment and school achievement are examined in this review of previous and current research.

A. Links between non-parental child care and children's development

Research into centre-based care has undergone three phases (Belsky, 1984, 1990; Hayes, Palmer, & Zaslow, 1990; Scarr & Eisenberg, 1993). The first phase compared children reared at home and children enrolled in centre-based care, focusing on social-emotional development using attachment theory as the base for questions and measures. The research of the second phase sought to identify characteristics of care environments that were related to different developmental outcomes for children. The third phase sought to incorporate the effects of ecological influences on children experiencing child care. Children's development then is determined by the interaction between characteristics of the child, familial and non-parental care experiences as well as factors in the child's larger social environment. Each of these factors should be considered when examining the effects of non-parental care on children's adjustment and achievement.

A number of studies over the past two decades have highlighted the significant role of non-parental care experiences in shaping children's development. Moreover, significant and lasting advances in children's development have been linked more specifically with both the quality and quantity of non-parental care. More recently, researchers have also begun to differentiate across both formal and informal non-parental care experiences as well as variations in the history of children's care.

Quality Care

The quality of care has been viewed as an important variable in shaping children's short- and long-term development. In linking quality care to child outcomes

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[1] In Australia there is a diversity of services to choose from: preschools, kindergartens, day care centres, play groups, occasional care programs, family day homes and in-home care. The educational levels of the staff vary, as do the facilities and services afforded to the children. There is therefore, a variety of content and quality provided. Also available to parents are their own familial and social contacts.

it is necessary to consider what constitutes quality care and how this can be measured. At all levels of government, Australia's policies regarding early childhood include regulatory and accreditation systems that aim to provide quality, affordable child care for all children (Press, 2006). The strategy of linking the Quality Improvement and Accreditation System (QIAS) with eligibility for child care subsidies has led to a very high level of QIAS compliance (National Childcare Accreditation Council, 2007).

The Quality Improvement and Accreditation System (QIAS) sees quality as including features of long day care that are beneficial to children's wellbeing learning and development. It incorporates structural features such as programming and evaluation, protective care and safety as well as process features such as staff relationships with children and peers, partnerships with families, and management issues that affect staff commitment, satisfaction, and stability. Similar governances encourage quality care in the family day care environment with the Family Day Care Quality Assurance (FDCQA) promoting positive interactions among carers, children and families, effective management and staff support, as well as high quality physical environments which promote children's learning and development.

Clearly, the quality of non-parental care is a multidimensional construct encompassing the physical environment, the educational curriculum, staff training, child-staff ratios, group sizes and interpersonal relations (Neilsen-Hewett, Coutts & Hayes, 2008). While high quality early childhood education can enhance children's social, communicative, and problem-solving competencies, poor-quality care experiences can place children at significant disadvantage and at risk for poor academic and social adjustment.

The Effective Provision of Pre-School Education (EPPE) study in the UK found that quality was largely related to the qualifications of staff and expressed through sustained shared thinking in interactions with children. Settings that included staff with higher qualifications scored higher on measures of child care quality (Taggart et al., 2006). While high quality early childhood education can enhance children's social, communicative, and problem-solving competencies, poor-quality care experiences can place children at significant disadvantage and at risk for poor academic and social adjustment.

Cognitive and language skill development. The EPPE study found that 'children experiencing quality early childhood programs scored higher on standardised tests of reading and mathematics at age 6...' (Sylva & Taylor, 2006, p.174) and again at age 11, while the children who attended poorer quality centres scored the same as children who did not attend preschool (Sammons et al., 2007). Similarly, recent findings from the US National Institute of Child Health and Human Development (NICHD) study in the USA link quality care to better pre-academic skills and language abilities at 4 years (National Institute of Child Health and Human Development Early Child Care Research Network, 2002 [NICHD ECCRN]), higher performance on standardised tests of maths, better memory at age 8 years, and higher vocabulary skills at age 8 and 12 years (Belsky et al., 2007; NICHD ECCRN, 2005). Helburn and colleagues (1995) also found that children in higher quality settings demonstrated more advanced language development and pre-maths skills. Similar findings emerged from the Gottenburg Child Care study which found that the quality of non-parental care predicted verbal abilities in later years (Broberg, Wessels, Lamb, & Hwang, 1997).

Studies of at-risk and economically disadvantaged children in high-quality care show heightened cognitive performance compared with children who did not have this kind of care experience (Berrueta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984; Caughy, DiPietro, & Strobino, 1994; Fuller, Kagan, Caspary, & Gauthier, 2004; Sylva & Taylor, 2006). For children 'at risk' of developing special educational needs, pre-school is a positive intervention strategy to reduce special educational needs and narrow the achievement gap (Taggart et al., 2006).

Attachment security. Earlier studies into non-parental care focused on possible negative effects on the mother–child relationship and children's socialisation, with the concern that young children fare better emotionally at home than in large groups (Barnett, 1995; Gomby, Larner, Stevenson, Lewitt, & Behrman, 1995). However, findings from the NICHD Study (NICHD ECCRN, 1997) indicate that the effects of non-parental care on attachment depend on the interaction between child and family characteristics. The authors concluded that greater hours in care is an additional risk factor for children already experiencing poor mother–child interactions (NICHD ECCRN, 2001).

Rauh, Ziegenhain, Muller, and Wijnroks (2000) also identified that maternal sensitivity had the greatest impact on secure attachment, more than day-care experiences. These findings highlight the need to examine both family factors as well as characteristics of the non-parental care system to understand influences on children's development. In the only Australian study of child care and attachment security, Harrison and Ungerer (1997, 2002) reported unique effects for secure attachment outcomes of maternal sensitivity, maternal social support and the use of formal government regulated child care.

Social-emotional adjustment. While concerns have arisen from studies reporting adverse effects of early and extensive[2] use of non-parental care (Belsky, 1988; NICHD ECCRN, 1998a; 2001; 2003; Sylva et al., 2003), the same studies and others, have linked higher quality programs with more positive outcomes (Love et al., 2003; Peisner-Feinberg et al., 2001; Sims et al., 2005). Variations in the quality of non-parental care have emerged as important predictors of children's socio-emotional adjustment both in the short- and long-term.

Helburn (1995) and colleagues found that children in higher quality settings demonstrated more advanced social skills, were more positive towards their child care experiences, and had warmer relationships with their teachers. Phillips, McCartney and Scarr (1987) found that children from better quality programs were more sociable, more considerate, less anxious and more task oriented.

Recent findings from the EPPE longitudinal study in the UK underscore the importance of incorporating assessments of children's school experiences when seeking to understand the impact of non-parental care on children's social adjustment

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[2] 'Extensive' care has been defined differently in these studies: Belsky's early work referred to more than 20 hours per week; the NICHD (2003) study has not identified a threshold effect for hours per week, but refers to a cumulative pattern of 'more time in care' or 'increased' amounts of care as problematic; mean hours increase from 21.0 hrs/week at age 3-6 months (minimum = 0, maximum = 62.5) to 26.8 hrs/week at 25-36 months (minimum = 0, maximum = 68.8); Sylva et al. (2004) refer to 'a longer time (in years and months)' particularly when children begin care in the first two years, as a concern

at school. Interestingly, in this study, social and behavioural differences between the preschool and home care groups that emerged early were no longer significant at Year 2 (age 7) except for those children who attended high quality care. Clearly children's long-term social development is also influenced by experiences with school-age peers or variations in classroom climate (Sylva, Melhuish, Sammons, Siraj-Blatchford, & Taggart, 2004).

Quantity of child care

Together with quality of care, quantity of care plays a role in shaping children's development. Quantity is defined in terms of weekly hours of care as well as length of exposure in years. Much of the research literature has tended to focus on the possible relationship between longer of hours of care and poorer social and emotional outcomes.

Social-emotional adjustment. UK and US studies, in particular, suggest that a history of extensive and continuous non-parental care is associated with poorer socio-emotional outcomes (Belsky, 2001; NICHD ECCRN, 2003; Osborn, Butler, & Morris, 1984; Sylva et al., 2003). The NICHD study identified that the more time children spent in non-parental child care across the first 4½ years, the more problem behaviour, assertiveness, disobedience, and aggression were reported by their parents, caregivers and teachers at 54 months and in Kindergarten (NICHD ECCRN, 2003).

Mixed findings, however, have been reported for younger children, with both positive and negative effects of longer hours of care on children's social interaction at age 2 to 3 years. Children with more experience in care were observed to be more socially skilful in a semi-structured play session with a peer (NICHD ECCRN, 2001). Similarly, findings of higher levels of social competence were reported in the Longitudinal Study of Australian Children (LSAC) (Harrison, 2008) and by Ungerer et al. (2006) for children of a similar age attending formal, accredited/regulated child care settings. On the other hand, children attending child care for longer hours were rated by carers as more negative in peer play (NICHD ECCRN, 2001) and as having elevated behaviour problems (Harrison, 2008).

The EPPE study found that high levels of 'group care' before age three, particularly before age two, were associated with higher levels of anti-social behaviour at age 3. Yet when children with high levels of anti-social behaviour at age 3 attended quality preschool programs between the ages of 3 and 5 years, their level of anti-social behaviour decreased (Sylva et al., 2003).

Nonlinear, interactive effects have also been found, with both gender and age of entry mediating the effects of quantity of care on children's development. In the NICHD study (NICHD ECCRN, 1999), boys who experienced more than thirty hours per week in non-parental care were more likely than the girls to be insecurely attached at age fifteen months. The same study (NICHD ECCRN, 1999) showed that for younger children, more time in care was associated with less sensitive mothering and less harmonious mother–infant interactions at 6, 15, 24 and 36 months; more problem behaviours at age 2 (as reported by caregivers) and less social competence (as reported by mothers). However, at age 3, there were no significant effects for amount of child care (NICHD ECCRN, 1998a; 2005).

Regarding Australia, it has been argued that the relatively high standards of care provided through the regulatory system in Australia may reduce the negative

behavioural effects associated with quantity of care found in other countries (Love et al., 2003). The Sydney Family Development Project found no significant correlation between quantity of care and behaviour problems, attachment, school social adjustment, or teacher–child conflict, (Harrison & Ungerer, 2002; Love et al., 2003). Again, Harrison and Ungerer (2000), in their study of 145 first-born infants, found no association between weekly hours of care and parent ratings of child behaviour problems at 30 months and 5 years, or between hours of care and teacher ratings of socio-emotional adjustment in the first year of school. In this study, stability rather than quantity of care was a key factor in explaining problem behaviours.

Cognitive and language skill development. In general, there is agreement that children's exposure to early childhood settings before starting school leads to long term benefits. The EPPE study found that an earlier start to pre-school was related to greater intellectual development (Sylva & Taylor, 2006). Fergusson, Horwood and Lynskey (1994), found that two to three years of early education was associated with small improvements in school achievement at thirteen years. The Gotenburg Child Care Study (Broberg et al., 1997) found that children who spent more months in centre-based care before they were 40 months showed higher cognitive ability.

On the other hand, reports of links between longer weekly hours of care and poorer cognitive and language outcomes are emerging from Australia (Harrison et al., in press; Harrison & Ungerer, 2000, 2002; Love et al., 2003; Wake et al., 2008). In these studies, longer hours of non-parental child care has been associated with lower scores for receptive vocabulary (Harrison et al., in press), poorer adjustment to the academic and learning demands of school (Harrison & Ungerer, 200, 2002; Love et al., 2003), and a greater risk of poorer learning outcomes (Wake et al., 2008).

Stability and multiplicity of care arrangements

Variations in patterns of care have also been shown to shape children's socio-emotional and cognitive adjustment. Tran and Weinraub (2006), used data from the NICHD study to explore the effects of quality, stability and multiplicity on attachment security, language comprehension, language production, and cognitive development at 15 months. While quality significantly predicted cognitive and language development, certain forms of unstable child care (non-familial change, familial to non-familial change and within home to out of home change) were associated with poorer language development.

Multiple care arrangements involving family members positively predicted language comprehension, with quality making a difference. If the primary care arrangement was of low or moderate quality then fewer multiple arrangements were associated with higher language scores. Where primary care quality was high, however having more multiple arrangements was associated with higher language scores (Tran & Weinraub, 2006).

Formal versus informal non-parental care

The child care environment encompasses both formal settings as well as informal care arrangements drawing on the services of extended family members and friends. Recent findings from the Longitudinal Study of Australian Children (LSAC) showed that 70.1% of children aged two to three years were receiving regular non-parental care, with 41.4% attending formal care only (e.g. long day care centres or

family day care), 15.0% informal care only (e.g. care with relatives, friends, sitters or a nanny) and 13.8% a mix of formal and informal care (Harrison, 2008).

LSAC findings for type of care have reported higher ratings of social competence and the lowest scores for behaviour problems for children receiving regular mixed formal and informal care (Harrison, 2008). Informal care was associated with more optimal ratings by parents of their children's social competence and behaviour problems. Grandparents as the main providers of informal care contribute to these positive results. Grandparent care is usually for one or only a few children and therefore involves low carer-to-child ratios, providing a greater opportunity for focused engagement and interaction. Grandparents also provide young children with the supportive, nurturing environment they need for healthy emotional development. Gray, Misson and Hayes (2006), in analysing Wave 1 LSAC data, found that grandparents reported higher levels of warmth and open communication in their relationships with infants than did centre-based caregivers.

Tran and Weinraub (2006) also found that child care arrangements involving family caregivers (e.g., fathers, grandmothers) were significantly related to higher language comprehension performance, while use of a mix of family and non-relative caregivers predicted poorer comprehension performance. This difference was attributed to the quality of care infants received in the primary care arrangement.

Together these findings underscore the significance of community factors (such as regulation and quality of nonparental child care), family factors (such as choice of informal, formal or no non-parental child care and amount of child care selected) and individual factors (such as maternal sensitivity) in shaping children's outcomes. While quality care seems to play a highly significant role in predicting child outcomes, family and child characteristics have also been identified as being important to children's adjustment to school and school performance. Studies related to family and child characteristics are outlined in the next section.

B. Family Characteristics and Child Outcomes

Child care effects on children's development occur in the context of family circumstances and events (Howes, 1990; Melhuish & Moss, 1992). Research has consistently shown that the quality of the home learning environment as well as parental occupation and qualifications make important contributions to children's intellectual and social development.

Parent demographics

Burchinal et al. (2002) found family characteristics such as maternal education, parents' caregiving practices and parenting attitudes were the strongest predictors of child outcomes, even among children receiving full-time non-parental child care. Children tended to show better academic scores over time when their parents had more education and reported more progressive parenting beliefs and practices. Similarly the NICHD study (NICHD ECCRN, 1998b) indicated that family demographics, parenting beliefs, and parenting styles provided an equally good prediction of early childhood outcomes for children reared exclusively by their parents as for children experiencing early and extensive child care. Anhalt, Telzrow, and Brown (2007) on examining NICHD data, demonstrated that maternal education and income in the perinatal period (the first month) accounted for 4% of the variance in children's externalising

behaviours (i.e., aggression) when children were in first grade, indicating the importance of parent factors for child outcomes.

Maternal stress, depression and sensitivity

Individual differences in children's adjustment have also been linked to maternal wellbeing. Anhalt et al. (2007) found that perinatal maternal stress, emotional status, maternal depression and parenting stress contributed to more behaviour problems for children when they were in first grade. These findings correspond with many other studies demonstrating that maternal depression affects child outcomes. The NICHD (NICHD ECCRN, 2003) study recognised that quantity of care effects were greater than the effects of maternal depression but smaller than the effects of maternal sensitivity. The attachment literature confirms that maternal sensitivity has a greater impact on attachment than child care (Rauh et al., 2000).

Parent support for children's learning

Mothers' and fathers' support for autonomy have been significantly and uniquely associated with boys' Grade 3 reading and maths achievement (NICHD ECCRN, 2008). However, it is the fathers (more than the mothers') sensitivity and support for autonomy in the prior to school and early school days that is a significant predictor of teachers' perceptions of both boys' and girls' behaviour, social skills, and the quality of the teacher-child relationship (NICHD ECCRN, 2004a).

Family resources and home activities are important for children's cognitive competencies (Wylie, Thompson, & Hendricks, 1997). The EPPE study has noted that for all children, regardless of the type of preschool education program they received, the quality of the home learning environment promotes greater intellectual and social development than parental occupation or qualification (Sylva et al., 2004).

Family involvement in education

The transition to school period and children's adjustment to Kindergarten is affected by the interaction and cooperation of families and schools (Rimm-Kaufman & Pianta, 1998). Dearing, Kreider, & Weiss (2008) are among many researchers demonstrating links between family involvement in school, children's relationships with their teachers, and children's feelings about school. Longitudinally, increases in family involvement in school predicted improvements in child-teacher relationships. These relational improvements then predicted improvements in children's perceptions of their competency in literacy and maths and in their attitudes toward school.

Child factors

Variations in children's performance and adjustment have been attributed to inherent characteristics such as race, gender and temperament. Gender has been identified as an important moderator of early school achievement and adjustment (NICHD ECCRN, 2005; Ramey et al., 2000). In the main, girls achieve higher outcomes than boys. Infant temperament (Miner & Clarke-Stewart, 2008) has been shown to have effects on child outcomes though less effect than quantity of care (NICHD ECCRN, 2003). Burchinal et al. (2002) demonstrated that children viewed as more outgoing acquired reading and maths skills more rapidly in the early school years, with girls tending to have better reading scores than boys.

Recent research suggests that one of the strongest predictors of academic achievement in the early years of school is the child's language skills just prior to starting school (NICHD ECCRN, 2005, p.28) as children's language skills reflect a child's parenting, quality of child care and social environments. Harrison et al. (2007) found that children's receptive vocabulary in particular, was the primary predictor of adjustment to school in a sample of 6-year-old Australian children.

C. Factors linked to school adjustment and achievement

There are many factors that are linked to successful transition to school[3]. A bio-ecological approach argues that it is the interaction of the community factors (e.g., the links between home and school, neighbourhood resources and characteristics), family factors (e.g., parental sensitivity, stimulation of the home environment, parent involvement, language, family culture) and child factors (e.g., gender, infant temperament) that influence children's transition to school, both their school adjustment and their school achievement.

Effective transition processes also adopt an *ecological* model of transition, taking into account the influence of contexts and connections – those in which the children are directly involved such as the family, the prior-to-school setting, the church group or play group, and those that exert an indirect influence such as the parental workplace, the local community and political contexts (Dockett & Perry, 2001, p.77).

School adjustment describes the well being of the child as they settle into school and is typically measured by children's perceptions or attitudes towards school, their level of anxiety, behaviour in the classroom, and performance on tasks. Adjustment is influenced by family and child factors (described in the previous section), children's prior to school experiences, their relationships with peers and the teacher, and aspects of the classroom environment. Children's adjustment to school is an important predictor of children's educational progress and adjustment in later life with many school adjustment problems having lasting or cumulative effects.

Prior to school experiences

Children arrive at school with a diverse range of prior-to-school experiences, in both home and child care settings, which influence their response to school and the teacher. Children from better resourced families with higher income or higher maternal education, for example, enjoy higher achievement at school (Burchinal et al., 2002; NICHD ECCRN, 2003; 2004b; 2005). Attendance at prior to school programs, such as early childhood and preschool services, has also been related to positive school performance both in the short and the long term (Commonwealth Department of Education Science and Training, 2002; Dockett & Perry, 2002; Fergusson et al., 1994; NICHD ECCRN, 2003; Pianta, Rimm-Kaufman, & Cox, 1999).

Osborn, Butler and Morris, (1984), found that children exposed to pre-school education performed better on tests assessing conceptual maturity and fine motor skills at the age of five. Findings from a study conducted by Howes (1990) suggest that early child care history continues to influence children's behaviours even after three years of exposure to high-quality elementary schooling. The EPPE study also found that pre-

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[3] Pianta & Rimm-Kaufman (2006) describe '*the period of transition to school to be bound, roughly, by the ages 3 and 7, during which attention increasingly is focused on children's "readiness for school" and the programs and practices that support such an outcome*' (p.1).

school experience enhances all round development in children, with cognitive gains in reading and mathematics still evident at age 7 (Sylva & Taylor, 2006).

Longitudinal studies in Australia that have followed children into their school years are few in number; however the current evidence suggests that early experience in formal long day care settings has a positive impact on children's adjustment to the learning demands of school as compared to informal child care settings (Harrison & Ungerer, 2000, 2002; Love et al., 2003).

Attitudes towards school

Children's perceptions of, or attitudes toward school are important for both their early academic adjustment and their socio-emotional wellbeing. Attitudes are commonly described by feelings of school liking and school avoidance and have been studied by researchers both in Australia (e.g., Harrison, Clarke & Ungerer, 2007; Murray & Harrison, 2005; Neilsen-Hewett, 2005) and internationally (e.g., Ladd & Price, 1987). Children who feel more positive about school (i.e., who like school and feel they are performing well) perform better academically and receive higher social adjustment ratings than children who are less positive (Ladd & Price, 1987; Ramey et al., 1998). The quality of teacher-child relationships, children's early experiences with peers and familial attitudes to learning have been identified within the research literature as playing a significant role in shaping children's early perceptions of school and their academic performance.

Research by Ladd (1987) has shown that children who like school are more likely to benefit from their educational experience than those children who experience anxiety, avoidance or negative attitudes toward school. Ladd notes that it is the latter signs which can indicate early adjustment difficulties and may disrupt children's future progress. In a more recent study, Ladd, Buhs and Seid (2000) have reported that the degree to which children like school 'may be an important determinant of their classroom participation, which in turn may impact their achievement' (p. 255).

Ramey et al. (1998), while interviewing Head Start children in the USA, found that most children (74%) had extremely positive perceptions of all aspects of school. However, 7% of children reported they did not like school very much and were not doing well. These children were significantly more likely to be boys and to have lower receptive language skills than the other children. Teachers' ratings of children's academic performance were significantly higher for children with more positive school perceptions in Kindergarten, 1st and 2nd grades.

Classroom factors

Children's long-term social development is not only influenced by experiences with school-age peers but also by variations in classroom climate (Stipek & Byler, 2004; Sylva et al., 2004) and size. Observations of children in larger classes found that children were more distracted from work and were more often off task, However, they were more likely to interact with their peers in on- and off-task behaviour and socially.

Peer relationships

Interpersonal relationships play an important role in children's adjustment to school and encompass both peer and teacher relationships. Children's social readiness and social competence play a valuable role in developing and maintaining positive relationships with significant others in their environment, as does sociability with

peers. Peer sociability can be related to whether or not children begin school with the presence of a familiar peer and how accepted they are by peers when they start Kindergarten and throughout their first year. Being accepted and viewed as trustworthy by peers contributes to school adjustment (Betts & Rotenberg, 2007).

Ladd (1990) found that while starting school with multiple friends in the classroom was linked with the development of more favourable school perceptions early on, maintaining these friendships was linked with liking school better as the year progressed. Making new classroom friends contributed to gains in school performance. However, early peer rejection was a prelude to negative perceptions, higher levels of school avoidance, and lower performance levels over the school year.

Ladd and Kochenderfer (1996) found that in having a stable best friend there can be psychological benefits or costs to friendships depending on the nature of that friendship. For example, the positive factor 'aid' predicted improvements in children's school attitudes while the less positive factors 'perceived exclusivity' was associated with lower levels of achievement. These in turn affect children's development and adjustment.

Teacher-child relationship

A growing number of studies report that good relationships with teachers have benefits for early school adjustment and success (Baker, Grant, & Morlock, 2008; Birch & Ladd, 1996, 1997; Harrison et al., 2007; Howes, 2000; Pianta, Nimetz, & Bennett, 1997; Pianta & Steinberg, 1992; Pianta, Steinberg, & Rollins, 1995). A relationship described with more positive qualities, and fewer negative qualities, has benefits for children's personal, social, and academic adjustment in the early years of school. Studies have also shown that early patterns of relationships continue over time (Howes, Phillipsen, & Peisner-Feinberg, 2000; Ladd & Burgess, 1999) with longitudinal studies demonstrating that early relationship quality predicts and affects children's future school career (Hamre & Pianta, 2001, Howes, 2000).[4]

There is also some indication that gender affects teachers' ratings of the child-teacher relationships. Howes et al. (2000), found teachers consistently rated their relationships with girls as closer. Hamre and Pianta (2001) also found closeness was higher for girls and conflict was higher for boys. Children's reports of these relationships match those of the teachers. Valeski and Stipek (2001) found that girls reported more positive feelings about their teachers; and Mantzicopoulos and Neuharth-Pritchett's (2003) found boys reported more conflict in their relationships

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[4] Closer, less conflicted relationships with teachers have been associated with (Adapted from Harrison, Clarke, & Ungerer, 2007):

- more positive feelings toward school (Birch & Ladd, 1997),
- fewer problem behaviours (Pianta et al., 1995),
- fewer discipline problems (Hamre & Pianta, 2001),
- less aggressive and asocial peer interaction (Ladd & Burgess, 1999),
- better social skills (Pianta & Steinberg, 1992) and work habits (Hamre & Pianta, 2001),
- better: basic concepts (Pianta et al., 1997); academic performance in visual and language skills (Birch & Ladd, 1997); and basic skills in language, arts, and mathematics (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Hamre & Pianta, 2001), and
- less chance of being retained in grade (Pianta & Steinberg, 1992).

with teachers. Similar findings have been reported in a study of Australian children (Harrison et al., 2007).

1.3   Research Questions

The aim of the research project was to examine children's social, cognitive, behavioural and academic development in relation to their child care, preschool and formal schooling experiences. An ecological design was employed, allowing these factors to be assessed in combination with child and family factors known to be important in explaining differences in children's development, as well as contextual influences such as quality of the child care and classroom environment.

The research questions are directly relevant to the provision of effective programs for children in the early childhood years. The key research questions were:

1. What is the experience of families and young children in relation to regulated child care?

    1.1 What kind of child care arrangements involving regulated care and what combinations of care do families make for their young children?

    1.2 How satisfied are families with their children's child care arrangements?

    1.3 How changeable are young children's care arrangements?

2. What is the nature of young children's child care experience?

    2.1 What is the level and range of quality provided in their child care centres and family day care homes?

    2.2 What is the quality of the relationships children form with their child care providers?

    2.3 What is the experience of families and children as children enter formal schooling?

3. What kind of transition experiences do parents report as helpful in preparing their child for school?

    3.1 What is the level and range of family involvement in their children's learning at home and at school?

    3.2 What kinds of child care arrangements do families make for their school-age children?

4. What is the nature of young children's experience of school?

    4.1 How do children feel about school, their teachers, and their peers?

    4.2 What is the level and range of quality provided in their classroom learning environments?

5. What factors explain how well children are doing in their development at school and in the year before entering school?

    5.1 What are the predictive effects of child and family characteristics, early child care experiences, early development and current patterns of child

care/preschool attendance on achievement and adjustment in the year prior to school entry?

5.2 What are the predictive effects of child and family characteristics, early child care experiences, early development, child care/preschool experience in the year before school, transition to school experiences, family support for learning at home and at school and classroom quality on achievement and adjustment in the first year of school?

5.3 What are the child, family, early learning and child care/preschool factors that combine to best predict children's achievement and adjustment in the year prior to school entry and the first year at school?

CHAPTER 2   METHODOLOGY

This chapter outlines the methods used in the study, including recruitment of the sample, sample characteristics, procedures and measures.

2.1 Recruitment of Sample

Families were recruited to the study from long day care centres and family day care schemes in metropolitan and rural New South Wales. Permission to conduct the study was obtained from the Department of Community Services in New South Wales, the Macquarie and Charles Sturt University Human Ethics Committees, directors, coordinators and carers in long day care and family day care services, and parents.

A different recruitment strategy was used for the urban and rural samples due to the relatively low number of children's services in rural New South Wales. In the Sydney sample, three NSW Department of Community Services areas were chosen on the basis of Australian Bureau of Statistics income data from the 1996 census. The three regions were Nepean (Western suburbs), Inner West and South East Sydney regions. Suburbs with families with low income were planned to be 2/5 of sample, with medium incomes to be 2/5 of the sample, and with high incomes to be 1/5 of the sample. The Department of Community Services supplied a list of all children's services in the three regions. Services with children aged less than 4 years and within a 20km radius of Sydney were approached to participate in the study. All agreed to participate.

In the rural sample, all children's services in the Department of Community Services Central West and Far West regions of New South Wales were approached for participation. All but one long day care centre and one family day care scheme agreed to participate. Additional remote towns in the Far West region were added to the sample in order to match the numbers of families in the urban sample.

Long day care centres and family day care schemes were recruited at a ratio of 2:1. Procedures for recruitment differed by type of service. Families were recruited at the long day care centres by a research assistant who invited them at drop-off or pick-up time to complete an Expression of Interest form. The form asked for details of the weekly care arrangements for their child who was aged 4 years or under. It also asked them to give contact details if they were willing to be contacted by the researchers for a phone interview. For family day care schemes, the coordinator distributed Expression of Interest forms to carers who then gave one to each parent using their service.

Parents who returned the Expression of Interest forms and consented to be contacted by phone were interviewed about their current child care arrangements. Parents were also sent a mail questionnaire with questions about themselves, their child, and their relationship to the child and their family.

2.2   Description of Sample

Participants

677 children were recruited in Wave 1, comprising 343 boys (50.7%) and 334 girls (49.3%). Children ranged in age from 4 months to 4 years 2 months, with a mean age of 2 years 1 month. Numbers recruited were slightly higher in the urban sample (N = 355, 52.4%) than in the rural sample (N = 322, 47.6%).

Patterns of participant retention were similar across the urban and rural samples. 257 families participated in every wave (135 urban families, 122 rural families). See Table 1 for the number of waves missed by participants in the urban, rural and total samples.

Table 2.1. Frequencies (and percentages) of waves missed by families in the urban, rural and total samples.

Number of waves missed	Urban	Rural	Total
0	135 (38.03%)	122 (37.89%)	257 (38.0%)
1	64 (18.03%)	46 (14.29%)	110 (16.2%)
2	38 (10.70 %)	37 (11.49%)	75 (11.1%)
3	29 (8.17%)	32 (9.94%)	61 (9.0%)
4	32 (9.01%)	32 (9.94%)	64 (9.5%)
5	57 (16.06%)	53 (16.46%)	110 (16.2%)

110 families dropped out after Wave 1 (57 urban families and 53 rural families), while 161 families missed one or more years and then returned (81 urban families, 80 rural families). These patterns of retention and attrition produce the numbers of participants in each wave shown below in Table 2.2. Although most primary caregivers (who provided information in telephone interviews) were mothers, a sizeable number of respondents were fathers or other relatives (see Table 2.3).

Table 2.2. Number of participants in each wave in the urban, rural and total samples.

	Urban	Rural	Total
Wave 1	355	322	677
Wave 2	236	207	443
Wave 3	263	230	493
Wave 4	240	215	455
Wave 5	213	184	397
Wave 6	183	165	348

Table 2.3. Number (and percentage) of primary caregivers by relation to the child in each Wave.

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Mother	456 (91.2)	445 (90.1)	450 (91.3)	388 (85.3)	351 (88.4)	316 (90.8)
Father	43 (8.6)	45 (9.1)	38 (7.7)	60 (13.2)	43 (10.8)	30 (8.6)
Grandmother	1 (0.2)	3 (0.6)	3 (0.6)	5 (1.1)	2 (0.5)	2 (0.6)
Great-Grandmother		1 (0.2)	1 (0.2)			
Adoptive Mother				1 (0.2)		
Adoptive Father			1 (0.2%)		1 (0.3%)	
Stepfather				1 (0.2%)		

Family characteristics of the Wave 1 sample

Maternal depression in Wave 1 was measured using the 20-item CES-D scale (Radloff, 1977) in which a score of 16 or above reflects an individual who is "at risk" of depression. In total 76 mothers (15.6%) scored above 16 (32 urban, 44 rural), $M = 9.25$, $SD = 8.39$. There was a marginally significant trend towards higher depression scores in the rural ($M = 9.94$, $SD = 8.91$) than the urban ($M = 8.62$, $SD = 7.86$) samples, $t(485) = 1.74$, $p = .08$.

Table 2.4 shows the frequencies and proportions of parents with less than HSC, HSC level or equivalent, diploma or trade and university education in the rural, urban and total samples. A chi square test shows that for both mothers ($\chi^2 = 86.75$, $df=2$, $p < .001$) and fathers ($\chi^2 = 82.04$, $df=2$, $p < .001$), the urban and rural populations differed in terms of the three levels of education. Inspection of the proportions in each level of education suggests that the urban sample (in Wave 1) had higher proportions than the rural sample of both mothers and fathers who had attained a university degree.

Table 2.4. Frequencies (and percentages) of mothers and fathers in the urban, rural and total samples who had attained high school, diploma or trade and university degree qualifications.

	Urban		Rural		Total	
	Mother	Father	Mother	Father	Mother	Father
Less than HSC	15 (4.6)	10 (3.3)	68 (21.9)	62 (23.5)	83 (13.1)	72 (12.8)
HSC or equivalent	46 (14.2)	55 (18.4)	70 (22.6)	53 (20.1)	116 (18.3)	108 (19.2)
Tertiary diploma or trade qualification	60 (16.9)	62 (20.7)	83 (26.8)	80 (30.3)	143 (21.1)	142 (25.2)
University degree	203 (62.7)	172 (57.5)	89 (28.7)	69 (26.1)	292 (43.1)	241 (42.8)

The urban sample had higher proportions of overseas-born parents than did the rural sample. See Table 2.5 for the frequencies and proportions of parents born in Australia and overseas.

Table 2.5. Frequencies (and percentages) of parents' place of birth by region in the urban, rural and total samples.

	Urban		Rural		Total	
	Mother	Father	Mother	Father	Mother	Father
Australia	235 (66.2%)	200 (56.3%)	298 (92.6%)	256 (79.5%)	533 (78.7%)	456 (67.4%)
English-speaking	72 (20.3%)	65 (18.3%)	17 (5.3%)	14 (4.4%)	89 (13.1%)	79 (11.7%)
Europe	11 (3.1%)	15 (4.2%)	2 (0.6%)	0 (0%)	13 (1.9%)	15 (2.2%)
Asia	24 (6.8%)	30 (8.5%)	2 (0.6%)	2 (0.6%)	26 (3.8%)	32 (4.7%)
Middle East	7 (2.0%)	7 (2.0%)	2 (0.6%)	2 (0.6%)	9 (1.3%)	9 (1.3%)
South America	5 (1.4%)	3 (0.9%)	1 (0.3%)	0 (0%)	6 (0.9%)	3 (0.4%)

The urban sample had a significantly higher average gross income than the rural sample in Wave 1 $t(583) = 9.62$, $p < .001$ ($104 670 and $63 868 respectively). Adjusted income was also calculated, by dividing the total income by the square root of the number of people living in each household. The urban sample likewise had a higher average adjusted income than the rural sample, $t(564) = 10.80$, $p < .001$ ($56 188 and $31 889 respectively). See Table 2.6 for urban and rural family incomes.

Table 2.6. Income in Australian dollars for the urban, rural and total samples.

	Urban		Rural		Total	
	Gross	Adjusted	Gross	Adjusted	Gross	Adjusted
Mean	104670.00	56188.10	63868.42	31889.58	84729.31	44768.65
SD	56598.58	30596.00	44973.91	21491.50	55139.33	29314.91
Median	95500.00	50000.00	60000.00	30000.00	75000.00	37546.85
Min	8000.00	3577.71	10000.00	5366.56	8000.00	3577.71
Max	300000.00	173205.08	580000.00	259383.89	580000.00	259383.89
N	300	300	285	266	585	566

In most urban and rural families had both the child's natural mother and father were living with the child (89.3% and 82.9% respectively). Rural families were more likely to have more than one child and, when there were other children in the household, rural families tended to have more children than urban families. See Tables 2.7 and 2.8 for other people living with the respondent and child, and number of other children in the house, respectively.

Table 2.7. Patterns of family structure in the urban, rural and total samples.

Other people living with respondent and child:	Urban	Rural	Total
No one	10 (2.8%)	14 (4.3%)	24 (3.5%)
Single parent category	31 (8.7%)	48 (14.9%)	79 (11.7%)
Child's natural father/mother	317 (89.3%)	267 (82.9%)	584 (86.3%)
Respondent's partner (not natural father/mother)	7 (2.0%)	7 (2.2%)	14 (2.2%)
Other adults (family, friends)	22 (6.2%)	19 (5.9%)	41 (6.1%)
Other children	169 (47.6%)	223 (69.3%)	392 (57.9%)

Table 2.8. Number of other children living with the respondent and child in the urban, rural and total samples.

	Urban	Rural	Total
0	186 (52.4%)	99 (30.8%)	285 (42.1%)
1	143 (40.3%)	132 (41.0%)	275 (40.6%)
2	21 (5.9%)	71 (22.1%)	92 (13.6%)
3	5 (1.4%)	12 (3.7%)	17 (2.5%)
4	0 (0%)	6 (1.9%)	6 (0.9%)
5	0 (0%)	1 (0.3%)	1 (0.1%)
6	0 (0%)	1 (0.3%)	1 (0.1%)

Summary of differences between urban and rural families

The urban sample had higher proportions of both mothers and fathers who had attained a university degree than the rural sample. Perhaps related to this education discrepancy, the urban sample likewise had higher average gross income than the rural sample. The urban sample had higher proportions of overseas-born parents than the rural sample. Both of the child's natural parents were living with the child in the majority of rural and urban samples, while rural families tended to have greater numbers of children in the household.

Child characteristics of the Wave 1 (Recruitment) sample.

One hundred and fourteen children in Wave 1 were reported to have long-standing health problems by their primary carer (16.8%). Of these, the most common problems were asthma (36 children, 5.3%) and eczema (28 children, 4.1%). A minority of children was reported to have serious health problems such as Down Syndrome (4 children, 0.4%).

Parents were asked to rate the troublesome behaviour of their children on a scale from 1 ("Not at all troublesome") to 10 ("Extremely troublesome"). The mean score was 2.99 (SD = 1.59). No children were given the highest score and the majority of children were rated either 2 (n = 168, 34.4%) or 3 (n = 142, SD = 29.0%). Parents also completed the Behaviour Checklist (Richman & Graham, 1971) in which a higher score indicates greater behavioural problems. Scores were averaged to produce a final score out of 2. Most children were rated as having relatively low levels of behavioural problems, with a mean score of 0.55, SD = 0.23.

Children's child care arrangements reflected the approach used to recruit the sample. Five hundred and thirty-nine children were attending long day care centres (80.0%) and 152 children received family day care (22.6%). Just over half of the children had only one child care arrangement in a typical week (n = 367, 55.4%), with the majority of the remainder having two different arrangements (n = 227, 34.2%). No children had more than five different arrangements in a typical week. Children spent on average a total of 29 hours in care in a typical week (minimum = 2 hours, maximum = 105 hours, SD = 14.78 hours), equivalent to about 3 days a week.

Family characteristics by retention pattern

As noted above there was attrition between waves, with some families dropping out entirely after Wave 1 and others participating in some but not all waves. Tukey's HSD tests were used to assess pairwise comparisons of income between families who completed every wave, families who dropped out after Wave 1 and families who completed some but not all waves. Income was found to be significantly higher in families who completed every wave (M = $89932, SD = $61167) than in families who dropped out after Wave 1 (M = $72037, SD = $43087), q = 3.68, p = .04. There was no difference between families who completed some but not all waves (M = $88752, SD = $56778) and either other group.

The same pattern held for adjusted income: families who completed every wave (M = $47484, SD = $31534) had significantly higher adjusted income than families who dropped out after Wave 1 (M = $38097, SD = $24292), q = 3.77, p = .04, while

there was no difference between families who completed some but not all waves ($M =$ $47321, SD = $31824) and either other group.

As seen in Table 2.9, there were few differences in parents' region of birth across the three patterns of participation, with the possible exception of a trend towards a higher proportion of families with parents of Asian heritage dropping out after Wave 1.

Table 2.9. Parental origin, frequencies (and percentages), by pattern of participation.

	Completed every wave		Dropped out after Wave 1		Missed waves and returned	
	Mothers	Fathers	Mothers	Fathers	Mothers	Fathers
Australia	221 (86%)	191 (74.3%)	81 (73.6%)	63 (57.3%)	127 (78.9%)	107 (66.5%)
English-speaking	27 (10.5%)	30 (11.7%)	14 (12.7%)	13 (11.8%)	20 (12.4%)	18 (11.2%)
Europe	3 (1.2%)	7 (2.7%)	1 (0.9%)	2 (1.8%)	3 (1.9%)	2 (1.2%)
Asia	4 (1.6%)	7 (2.7%)	12 (10.9%)	9 (8.2%)	5 (3.1%)	11 (6.8%)
Middle East	1 (0.4%)	2 (0.8%)	1 (0.9%)	1 (0.9%)	3 (1.9%)	2 (1.2%)
South America	1 (0.5%)	1 (0.4%)	1 (0.9%)	0 (0%)	2 (1.2%)	1 (0.6%)

Table 2.10 shows there were no obvious differences in total family size between the patterns of participation.

Table 2.10. Total family size frequencies (and percentages), by pattern of participation.

Family size	Completed every wave	Dropped out after Wave 1	Missed a wave and returned
2	5 (1.9%)	6 (5.5%)	6 (3.7%)
3	95 (37%)	39 (36.5%)	69 (42.9%)
4	107 (41.6%)	45 (40.9%)	55 (34.2%)
5	31 (12.1%)	15 (13.6%)	23 (14.3%)
6	5 (1.9%)	2 (1.8%)	3 (1.9%)
7	2 (0.8%	2 (1.8%)	2 (1.2%)

As seen in Table 2.11, there is a trend towards more educated families staying in the study. Higher proportions of parents with high school education dropped out after Wave 1 than either completed every wave or missed waves and returned; the opposite is true for parents with university degrees.

Table 2.11. Level of education frequencies (and percentages), by pattern of participation.

	Completed every wave		Dropped out after Wave 1		Missed waves and returned	
	Mothers	Fathers	Mothers	Fathers	Mothers	Fathers
Less than HSC	23 (9.1%)	22 (9.2%)	24 (23.1%)	16 (19.3%)	23 (18.0%)	20 (17.7%)
HSC or equivalent	41 (16.1%)	35 (14.6%)	20 (19.2%)	20 (24.1%)	19 (14.8%)	21 (18.6%)
Tertiary diploma or trade qualification	62 (24.4%)	71 (29.7%)	20 (19.2%)	12 (14.5%)	31 (24.2%)	25 (22.1%)
University degree	128 (50.4%)	111 (46.4%)	40 (38.5%)	35 (42.2%)	55 (43.0%)	47 (41.6%)

There were no significant differences in maternal depression between families who stayed for every wave ($M = 9.25$, $SD = 8.65$), families who dropped out after Wave 1 ($M = 8.75$, $SD = 8.79$) and families who missed one or more waves and returned ($M = 8.61$, $SD = 7.49$), all ps > .05.

Summary of differences between family characteristics by retention patterns. Overall, families who completed every wave tended to have the highest average income, which is perhaps reflected in the trend towards higher levels of education in

families who completed every wave. There were no sizeable differences in region of birth, family size or maternal depression across patterns of participation.

Family characteristics of children in Kindergarten

The primary focus of this project is on the transition to school. Of key interest therefore, are the family and child characteristics of the children in Kindergarten, across waves. Table 2.12 gives numbers, gender and ages of children in the year before school, Kindergarten and Year 1.

Table 2.12. Number of children, gender, mean age and age range of children in the Year before school, Kindergarten and Year 1.

	Number of children	Gender	Mean Age in Years (SD)	Age range
Year before school	378	Male: 195 Female: 183	5.14 (0.46)	Min: 3.68 Max: 7.04
Kindergarten	392	Male: 197 Female: 195	5.91 (0.52)	Min: 4.00 Max: 8.01
Year 1	254	Male: 122 Female: 132	6.68 (0.51)	Min: 5.03 Max: 8.00

Families with children in Kindergarten had a mean income of $130320, *SD* = $142131 (Median = $100000, minimum = $6000, maximum = $1500 000) and an adjusted income of $62751, *SD* = $64702 (Median = $49193, minimum = $2449, maximum = $866025).

Around half of both mothers and fathers of children in Kindergarten had obtained a university degree (see Table 2.13).

Table 2.13. Number (and percentage) of mothers and fathers of children in Kindergarten with high school, tertiary diploma or trade qualification and university level education.

	Mothers	Fathers
Less than HSC	41 (9.95%)	44 (12.12%)
HSC or equivalent	52 (12.62%)	51 (14.05%)
Tertiary diploma or trade qualification	89 (21.60%)	103 (28.38%)
University degree	230 (55.83%)	165 (45.45%)

The majority of parents were born in Australia (see Table 2.14) and nearly half of all families with a child in Kindergarten consisted of four family members (Table 2.15).

Table 2.14. Parental origins, frequencies (and percentages) of parents with children in Kindergarten.

	Mother	Father
Australia	351 (83.77%)	303 (80.37%)
English-speaking	46 (10.98%)	48 (12.73%)
Europe	5 (1.19%)	9 (2.39%)
Asia	12 (2.86%)	14 (3.71%)
South America	3 (0.72%)	1 (0.27%)
Middle East	2 (0.48%)	2 (0.53%)

Child characteristics of children in Kindergarten

Most children were living with siblings by the time they were in their first year of school; less than 12% were only children.

Table 2.15. Total family size of children in Kindergarten

Number of children	Number of families	Percentage
1	40	11.8%
2	181	52.6%
3	97	28.2%
4	18	5.2%
5	4	1.2%

2.3 Procedure

Data collection

Data for the project were collected annually using a variety of methods: telephone interviews with parents, surveys completed by Directors, carers and teachers, observations in long day care centres, family day care homes, preschools and Kindergarten classrooms by researchers and developmental assessments on standardised measures by researchers. Due to the large sample, data collection took place throughout the year with observations and child assessments generally held in school terms 2 and 3. Distribution of surveys to child care and school staff and telephone interviews took place at the same time. This meant that parent reports on the child, carer/teacher reports on the child and child assessments were completed within three months of each other.

1. Telephone interviews

Telephone interviews were conducted with the child's primary caretaker at home. In the majority of cases this was the mother (see Table 2.3 for details of the primary caregivers' relationship to the child). Telephone interviews were conducted by the Australian Institute of Family Studies for the first two years of the study and by ACNeilsen thereafter. Both companies used CATI facilities (Computer Assisted Telephone Interviews) that converted responses to the mainly closed interview questions into numerical form in an SPSS file. In this way, files for analysis were made available quickly to the research team following completion of the annual telephone interviews.

The interviews themselves lasted from 30-45 minutes each year. Interviewers asked a series of questions about child care arrangements for the target child and demographic details about the family as well as questions about the target child's health and development and parent wellbeing. Response rates to telephone interviews ranged from 51.5% to 73.9%. They were also the main source of data on the child, family and child care predictors used in the final analyses.

2. Parent questionnaire

In Wave 1, a mail-back questionnaire of parents was used to ask the questions on parental wellbeing. As the response rate for this form of data collection was lower in Wave 1 (72.5%) than for telephone interviews (74.6%), a decision was made to discontinue the questionnaire and to include all child and family questions to parents in the telephone interviews from Wave 2 onwards.

3. Director, carer and teacher surveys

Directors of long day care centres, preschools and family day care schemes were asked to complete a short survey about their organisation. They were asked about the number of staff and their qualifications and experience and the number of children at the centre or in the scheme.

The main carer of study children in prior to school settings and their Kindergarten teacher in the first year of school were asked to complete a survey about the target child's behaviour and development. Their centre or school was paid for their time ($10 for filling out each survey). Surveys were given out at the centre or school and collected either by the researcher or returned by mail.

4. Child care centre, family day care home, preschool and Kindergarten observations

Researchers visited the child care centre, preschool, family day care home or school that the child attended (the setting at which the child spent the most time in that year) to make structured observations of the care/school environment. The following standardised measures were used:

- ECERS (Early Childhood Environmental Rating Scale- Harms, Clifford, & Cryer, 1998) for children aged three years or older attending long day care centres or preschools

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- ITERS (Infant-Toddler Environmental Rating Scale - Revised) for children aged two years or younger
- FDCERS (Family Day Care Environment Rating Scale - Revised) for children attending family day care

The measure used for the school classroom observations was the Classroom Observation Index - Kindergarten for children attending Kindergarten (their first year at school). The COI-K was developed by Murray and Harrison to assess three broad areas of the learning environment: Classroom Management, Social Climate, and Instruction. It comprises ten items from two measures: the Early Childhood Classroom Observation Measure (ECCOM) (Stipek & Byler, 2004) and the NSW Quality Teaching Classroom Observation Guide (QT) (University of Newcastle, Australia, and NSW Department of Education, 2004). Each item is scored on a 5-point scale.

For the observations in child care centres, the intraclass correlations for seven matched pairs of ITERS observations was .97 and for 14 matched pairs of ECERS observations was .96. In family day care homes, the intraclass correlation for two matched pairs of observations was .83 (there were relatively few observations made in family day care homes).

For the school observations, reliability was based on 39 matched pairs of ratings. Intraclass correlations from a one-way random effects model for the three subscales were: social climate $r = .98$; classroom management $r = .94$; instruction $r = .97$.

5. Child development assessments

Children's development was measured by face-to-face assessments using standardised measures of literacy and numeracy suitable for the age group of the children as they progressed through the study. The measures were:

- Peabody Picture Vocabulary Test (PPVT-III) Third Edition, measure of receptive language (English)
- Woodcock-Johnston Psycho-educational Battery - Revised, Letter-Word Identification and Spelling subtests as a measure of literacy skills for children aged 4 to 6 years (children tested on subtest suitable for their age and skills)
- Woodcock-Johnston Psycho-educational Battery – Revised, Applied Problems subtest of numeracy skills for children aged 4 to 6 years.

Child assessments were conducted individually with each child either at their child care centre, preschool or school away from class in a quiet room or at home if the parents were willing when a teacher did not agree to have the researcher visit their classroom.

6. Child interviews

Children in Kindergarten at school were given a short 10-minute interview when they were asked to complete a series of questions about their experiences and feelings

about school, their teachers, and their classmates. The interview followed their developmental assessments.

2.4 Measures

A summary of the measures used for the study is presented below. The measures are listed under the names used to group variables for the analyses in the final Results chapter (Chapter 6).

Child Characteristics

Name	Infant/Toddler Temperament Questionnaire
Location	Parent questionnaire (Wave 1); CATI interview (Wave 2:children 1-2 years only)
Description	30 items, dealing with child's behavioural reactions and profiles. Different forms of questionnaire, varying with age of child.
Measurement	Provides temperament profile, with index of easy/difficultness.
References	Fullard, W., McDevitt, S.C. & Carey, W.B. (1984). Assessing temperament in one to three-year old children. Journal of Paediatric Psychology, 9, 205-16.

Family Characteristics

Name	Index of Social Support
Location	Parent questionnaire (Wave 1) and CATI (Wave 2).
Description	15 item scale, tapping the perception of the social interaction available and degree of satisfaction with it. e.g., *I often need help from other people but can't get it*. Rating on 5-point scale from (1) strongly agree to (5) strongly disagree. Higher score means less social support.
Measurement	Sum all 15 items, after recoding.
References	Henderson, S., Duncan-Jones, P., McAuley, H. and Ritchie, K. (1978). The Patient's Primary Group. British Journal of Psychiatry, 132, 74-86.

Name	Depression Scale (CES-D)
Location	Parent questionnaire (Wave 1)
Description	20 item scale, containing items assessing depressive symptomatology in the general population.
Measurement	Sum all items, after recoding, to obtain overall index of level of depression. Score of 16 reflects individual 'at risk' of depression.
References	Radloff, L.S. (1977). The CES-D Scale: a Self-Report Depression Scale for Research in the General Population. Applied Psychological Measurement, 1, 385-401.

Name	Parent-child Relationship Scale
Location	Parent and carer questionnaires (Wave 1); CATI interview and carer questionnaire (Wave 2).
Description	30-items assessing quality of relationship between child and parent
Measurement	Subscales are computed to describe relational conflict, closeness (warmth and open communication) and dependence. Also overall score, reflecting strength of positive relationship.
References	Pianta, R. C. (1995). *Child-Parent Relationship Scale*. Unpublished measure, University of Virginia.

Family Learning Environment

Name	Shared Home Activities
Location	CATI interview (Kindergarten)
Description	Parent rating of support for educational activities at home with their child; eg., read to, told a story, drawing/art/craft, music, indoor games; outdoor games; everyday home routines.
Measurement	The rating for reading to the child at home was used as a measure of support for literacy. Ratings for other shared home activities were combined to create a total score.
References	These scales were adapted for Longitudinal Study of Australian Children from measures used in the U. S. Early Childhood Study of Kindergarteners (National Center for Educational Statistics).

Child Care and School Characteristics

Name	Infant-Toddler Environment Rating Scale – Revised (ITERS)
Location	Observational ratings at centres for children aged under 2 years
Description	An observation measure used to evaluate the quality of child care settings. 20 items selected from a 35 item scale.
Measurement	5 subscales created: Furniture and displays: 1-5; Listening and talking: 15-16; Learning activities: 17-24; Interaction: 25-27; Program structure: 28-29.
References	Harms, T., Cryer, D., & Clifford, R. (1990). *Infant/Toddler Environment Rating Scale*. New York: Teachers College Press.

Name	Early Childhood Environmental Rating Scale– Revised (ECERS)
Location	Observational ratings at centres for children aged 3-5 years
Description	An observation measure used to evaluate the quality of child care and preschool settings. 22 items selected from a 35 item scale.
Measurement	4 subscales created: Space and Furniture: 2-8; Language: 15-18; Activities: 19-28; Interaction: 29-33
References	Harms, T., Clifford, R., & Cryer, D. (1998) *Early Childhood Environment Scale* (Revised Edition) NY: Teachers College Press.

Name	Family Day Care Rating Scale– Revised (FDCERS)
Location	Observational ratings in family day care homes
Description	An observation measure used to evaluate the quality of home-based child care settings.
Measurement	4 subscales created: Space and Furnishings: 1-5; Language and Reasoning: 14-17; Learning Activities: 18-26; Social development: 27-29
References	Harms, T., Clifford, R., & Cryer, D. (1998) *Family Day Care Environment Rating Scale.* NY: Teachers College Press.

Name	Student-Teacher Relationship Scale
Location	Carer/Teacher questionnaires for children aged 3 and 4 years
Description	Self-report measure by carer/teacher of feelings about their relationship with the child, the child's interactive behaviour with the carer/teacher and the carer/teacher's beliefs about the child's feelings towards her.
Measurement	28 items 5-point scale ratings. Subscales are computed to describe relational conflict, closeness (warmth and open communication) and dependence.
References	Pianta, R. C. (2001). *Student-Teacher Relationship Scale: Professional Manual.* Lutz, FL: Psychological Assessment Resources, Inc.

Name	Classroom Observation Instrument-Kindergarten (COI-K)
Location	Observation of classroom, child in Kindergarten
Description	10 items assessing 3 broad areas: classroom management, social climate and instruction/pedagogy.
Measurement	5-point rating from (1) practice rarely seen to (5) practice predominates
References	Murray, E., & Harrison, L. (2006). *Classroom Observation Instrument – Kindergarten: Instruction Manual.* Bathurst: Charles Sturt University.

Children's Development

Name	Vinelands Adaptive Behaviour Scales (Communication and Motor Domains)
Location	CATI interview (Wave 1: Communication and Motor Domains; Wave 2: Communication only; Wave 3: Communication only).
Description	Communication: up to 53 items, relating to child's receptive, expressive and written communication skills. Motor: up to 36 items, dealing with child's gross and fine motor skills.
Measurement	Provides standardised scores, as indices of child's communication and motor development levels. Mean score is 100, with SD = 15.
References	Sparrow, S.S., Balla, D.A., and Cicchetti, D.V. (1984). *Vineland

	Adaptive Behaviour Scales Interview Edition Survey Form Manual. American Guidance Service. Circle Pines.

Name	Behaviour Checklist
Location	Parent and carer questionnaires (Wave 1); CATI interview and carer questionnaires (Wave 2; children up to 3 years only)
Description	Up to 19 items, dealing with child's behaviour patterns.
Measurement	Provides total score, with higher scores reflecting more problematic behaviour. Score of 10 or over regarded as problematic.
References	Richman, N., Stevenson, J., & Graham, P.J. (1982). *Pre-school to School: A behavioural study*. London UK. Academic Press.

Name	Social Skills Rating System
Location	Parent and carer questionnaires (Wave 1); CATI interview and carer questionnaires (Wave 2; children up to 3 years only)
Description	13 items included, tapping child's social skills and interactions.
Measurement	Factor analysis yields 2 factors (7 and 4 items), measuring adaptive and aggressive play respectively.
References	Gresham, F., & Elliott, S. (1990). *Manual for the Social Skills Rating System*. Circle Pines, MN: American Guidance Service.

Name	Peabody Picture Vocabulary Test (PPVT-III) Third Edition
Location	Assessment with child at centre
Description	Measure of receptive vocabulary
Measurement	Child points to one of 4 pictures that match a word. Test continues until 6 consecutive errors
References	Dunn, L. M. & Dunn L. M. (1997). *Peabody Picture Vocabulary Test (PPVT-III)*, 3rd edn. Circle Pines, MN: American Guidance Service.

Children's Adjustment (Year before School, Kindergarten)

Name	Student-Teacher Relationship Scale
Location	Teacher questionnaires K, Y1 and Y2. Carers for children aged 3 and 4 years
Description	Self-report measure by teacher of feelings about their relationship with a student, the student's interactive behaviour with the teacher and the teacher's beliefs about the student's feelings towards the teacher.
Measurement	28 items 5-point scale ratings. Subscales are computed to describe relational conflict, closeness (warmth and open communication) and dependence.
References	Pianta, R. C. (2001). *Student-Teacher Relationship Scale: Professional Manual*. Lutz, FL: Psychological Assessment Resources, Inc.

Name	Strengths and Difficulties Questionnaire
Location	CATI interview and teacher questionnaire (Wave 2, children aged over 3 years)
Description	25 item scale, assessing aspects of child's behaviour.
Measurement	Compute factor scores (conduct problems, hyperactivity, emotional symptoms, peer problems, pro-social behaviour score) and total difficulties score. These scores can be categorised into low need, some need or high need.
References	Goodman, R., Meltzer, H. and Bailey, V. (1998). The strengths and difficulties questionnaire: a pilot study on the validity of the self-report version. *European Child and Adolescent Psychiatry, 7,* 125-130.

Name	Classroom Behaviour Inventory
Location	Teacher questionnaire – Kindergarten
Description	42 item scale, assessing aspects of child's behaviour in the classroom
Measurement	Compute factor scores (creativity/curiosity, task orientation, dependence, distractibility, intelligent behaviour, extraversion, introversion, considerateness, hostility). These subscales generate three factors: approach to learning (5 subscales), personal adjustment (2 subscales), social adjustment (2 subscales).
References	Peisner-Feinberg, E., Burchinal, M., Clifford, R. et al. (2001). The relation of preschool child-care quality to children's cognitive and social developmental trajectories through second grade. *Child Development, 72*, 1534-1553. Schaefer, E., Edgerton, M., & Aaronson, M. (1978). *Child Behavior Inventory*. Unpublished manuscript, University of Carolina.

Name	Feelings about School – Kindergarten
Location	Child interview in Kindergarten at school
Description	23 items measuring children's school liking and avoidance, teacher liking and peer liking
Measurement	4 subscales: school liking; School avoidance; Teacher liking; Peer liking
References	Ladd, G. W., & Price, J. M. (1987). Predicting children's social and school adjustment following the transition from preschool to Kindergarten. *Child Development, 58*, 1168-1189. Valeski, T. N., & Stipek, D. J. (2001). Young children's feelings about school. *Child Development, 7(4),* 1198-1213.

Children's Achievement (Year before School, Kindergarten)

Name	Woodcock-Johnson Psycho-Educational Battery – Revised WJ-R)
Location	Assessment with child at centre and school
Description	Subtests used: Letter-Word Identification, Spelling and Applied Problems
Measurement	Tests of literacy and numeracy
References	Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock-Johnston III*. Itasca, IL: Riverside Publishing

CHAPTER 3   CHILD CARE

This chapter presents the findings for the child care arrangements made for the children in the sample. It describes the types, patterns, and amount of non-parental care children received across longitudinal waves of data collection, covering the period prior to school and the first year of school. A major feature of this chapter is the description of children's changing child care arrangements, over time. The chapter also presents parents' reasons for making multiple care arrangements and for changes made in arrangements, as well as their satisfaction with care arrangements. The final section of the chapter presents results for quality of child care.

3.1   Children's First Experiences of Non-Parental Care

In the first wave of data collection parents provided information on their child's care arrangements in the child's first year of life. For children aged over 1 in the first wave of data collection therefore, such information is provided retrospectively.

The average age at which children started care was 10.1 months ($SD = 7.14$ months). The majority of children (66.3%) started care in their first year of life. Most children had either one (225 children, 50.1%) or two (165 children, 36.7%) different childcare arrangements in their first year of life. As shown in Table 3.1, the most common type of care was long day care, followed by family day care, reflecting the recruitment of families for the study.

Table 3.1. Number (and percentage of respondents) of children in each type of care in their first through fourth childcare arrangements in their first year of life.

	First arrangement[1]	Second arrangement	Third arrangement	Fourth arrangement
Long Day Care	202 (45.9%)	51 (23.7%)	14 (28.0%)	
Family Day Care	91 (20.7%)	27 (12.6%)	6 (12.0%)	1 (14.3%)
Father[2]	49 (11.1%)	38 (17.7%)	5 (10.0%)	1 (14.3%)
Grandmother	54 (12.3%)	60 (27.9%)	13 (26.0%)	4 (57.1%)
Grandfather		1 (0.5%)	1 (2.0%)	
Uncle	1 (0.2%)			
Aunty	5 (1.1%)	6 (2.8%)	2 (4.0%)	
Other relative	3 (0.7%)	4 (1.9%)	2 (4.0%)	
Neighbour	1 (0.2%)		2 (4.0%)	
Family friend	8 (1.8%)	14 (6.5%)	2 (4.0%)	
Nanny/Paid babysitter	26 (5.9%)	14 (6.5%)	3 (6.0%)	1 (14.3%)

[1] Parents were asked to give arrangements in order of hours of care
[2] While the focus of this study was on non-parental care, parents were asked about father care when this was on a regular daily / weekly basis e.g., every Thursday.

On average children spent 21 hours in their first childcare arrangement ($SD = 14.7$ hours range = 1 to 99 hours), 14.3 hours in their second childcare arrangement

(*SD* = 11.8 hours, range = 1 to 70 hours), 10.4 hours in their third childcare arrangement (*SD* = 9.0 hours, range = 1 to 40 hours) and 13 hours in their fourth childcare arrangement (*SD* = 13.0 hours, range = 1 to 40 hours). Note that some children used informal care arrangements overnight, which accounted for very long hours of weekly care.

Care arrangements in children's first year of life were on the whole very stable. Parents were asked to rate whether they had changed childcare arrangements for their child much in their first year of life. 169 parents (78.6% of respondents) said the care was "not at all changeable" while 39 parents (18.1%) said the care was "somewhat changeable" and seven parents (3.3%) said the care was "very changeable". Of children whose care changed, the majority (18 respondents, 40.0%) of parents reported the care changed only once, with 10 children (22.2%) changing care twice in their first year of life.

3.2 Patterns of Non-Parental Care, Use of Multiple Care

Data reported here was collected over the 6 years of the study. Parents were asked each question in every wave. Data is therefore not retrospective and each child's data is reported for every age bracket in which they participated in the study. If a child participated in every wave therefore, that child will appear six times in each analysis.

In each wave, parents whose children were not yet attending school were asked whether their children were in centre-based care. Each centre was coded as either a Long Day Care Centre or a Preschool. As shown in Table 3.2, of children who attended centre-based care, the majority of children in each age bracket except 6 to 7 year olds attended a Long Day Care Centre only, with the proportion of children attending Preschools increasing with age. This was expected as Preschools generally only take children aged 3 to 5 years (with some centres accepting children aged 2 ½ years).

Table 3.2. Number (and percentage) of children attending Long Day Care only, Preschool only or both Long Day Care and Preschool care by age.

	Long Day Care only	Preschool Only	Both Long Day Care and Preschool
0 to 1 years	32 (100.0%)	0 (0.0%)	0 (0%)
1 to 2 years	213 (100.0%)	0 (0.0%)	0 (0%)
2 to 3 years	331 (99.7%)	1 (0.3%)	0 (0%)
3 to 4 years	309 (86.3%)	36 (10.1%)	13 (3.6%)
4 to 5 years	271 (69.5%)	89 (22.8%)	30 (7.7%)
5 to 6 years	97 (61.4%)	45 (28.5%)	16 (10.1%)
6 to 7 years	0 (0%)	3 (75.0%)	1 (25.0%)

Selecting for children in the year prior to starting school, the majority of children attended Long Day Care only (205 children, 63.7%). Ninety three children

(28.9%) attended preschool only and 24 children (7.5%) attended both Long Day Care and preschool programs.

Multiple care

Figure 3.1 gives the percentage of children in each age group who attended a variety of care combinations: Long Day Care only, Preschool only, Family Day Care only, Informal care only (e.g., care by a grandparent, the respondent's partner, another relative or a non-relative with no formal care), a mixture of formal and informal care (such as Long Day Care and grandparent care) and mixed formal care (e.g., Long Day Care and Family Day Care but no informal care). The most frequent care categories across all age groups were Long Day Care only and a mixture of formal and informal care. This reflects the sample characteristics: families were recruited from child care centres, with the majority being Long Day Care centres.

Figure 3.1 Percentage of children in each age group who attended each combination of care.
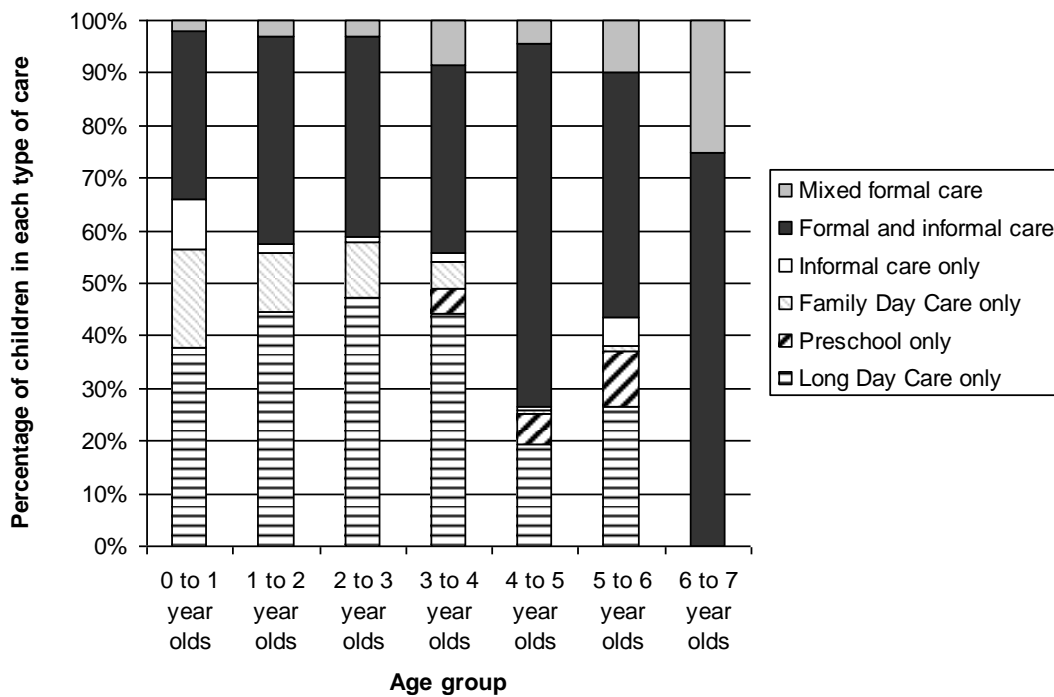
Parent satisfaction with care

For each type of care parents were asked to rate on a 5-point scale from "Not at all satisfied" to "Very satisfied" how satisfied they were with their child's care arrangements. Table 3.3 shows the mean satisfaction rating for each type of care by age of child. Overall parents reported being reasonably satisfied with all forms of care. Few parents reported being not at all satisfied with any type of care, with only some Long Day Care centres receiving any of the lowest ratings. Over half of parents reported being very satisfied with their care arrangements, regardless of the type of care involved.

Table 3.3. Mean satisfaction ratings given by parents for each type of care by age of child.

	LDC	Preschool	FDC	Grandparent	Other relative	Non-parental (e.g. babysitter)
0 to 1 year olds	4.4 (0.5)		4.6 (0.6)	4.9 (0.3)	4.0 (N/A)	4.3 (1.0)
1 to 2 year olds	4.5 (0.6)		4.5 (0.8)	4.8 (0.5)	5.0 (0.0)	4.7 (0.5)
2 to 3 year olds	4.5 (0.6)	5.0 (N/A)	4.7 (0.6)	4.7 (0.6)	4.5 (1.0)	4.6 (0.5)
3 to 4 year olds	4.4 (0.7)	4.6 (0.7)	4.7 (0.5)	4.7 (0.6)	4.5 (0.8)	4.6 (0.6)
4 to 5 year olds	4.4 (0.8)	4.7 (0.5)	4.6 (0.6)	4.9 (0.4)	4.7 (0.5)	4.5 (0.8)
5 to 6 year olds	4.5 (0.8)	4.6 (0.6)	4.6 (0.6)	4.8 (0.6)	4.6 (0.8)	4.6 (0.8)
6 to 7 year olds	4.0 (0.0)	3.3 (1.7)	5.0 (0)			5.0 (0.0)

Reasons for use of multiple care

Parents of children who were in more than one childcare setting excluding vacation care were asked to rate on a scale from 1 to 5 the extent to which a variety of reasons influenced their decision to place their child in multiple settings. Table 3.4 gives the mean ratings for each multiple care reason, by age of child. The convenience of the care arrangements and wanting the child to experience different arrangements and interact with different people were most likely to apply to parents' decisions to choose multiple care arrangements. The affordability of care and that the family kept moving were least likely to apply.

Table 3.4. Mean (and standard deviation*) ratings for each reason for multiple care by age of child.*

	I can't access enough hours in my preferred child care arrangement	I don't think it is good for my child to be in formal care only	I don't think it is good for my child to stay in one type of care all the time	I like my child to be able to interact with different adults and children	I want my child to have a range of experiences so he/she will learn new things	I want my child to spend some time with his/her family members
0 to 1 year olds	2.4 (1.7)	2.9 (1.9)	2.6 (1.5)	3.5 (1.5)	3.3 (1.4)	4.1 (1.4)
1 to 2 year olds	2.1 (1.6)	3.2 (1.6)	3.0 (1.6)	4.1 (1.4)	3.7 (1.5)	4.1 (1.5)
2 to 3 year olds	1.8 (1.3)	3.3 (1.6)	3.1 (1.6)	4.1 (1.2)	3.9 (1.4)	4.2 (1.4)
3 to 4 year olds	2.0 (1.4)	2.9 (1.7)	2.9 (1.6)	3.9 (1.4)	3.6 (1.5)	3.5 (1.8)
4 to 5 year olds	1.9 (1.5)	2.9 (1.6)	2.9 (1.6)	3.9 (1.4)	3.7 (1.5)	3.4 (1.8)
5 to 6 year olds	1.7 (1.4)	3.0 (1.7)	3.0 (1.6)	3.9 (1.4)	4.0 (1.4)	3.6 (1.8)

	It is good for my child to experience a centre and a family environment	It is hard to find child care available during the times I need it	My child will not get the stimulation he/she needs in one type of child care	My preferred child care arrangement is not consistently available	The arrangements are convenient for me	The family keeps moving and I'm unable to keep my child in a stable routine	I cannot afford to use my preferred child care arrangement all the time
0 to 1 year olds	3.0 (1.6)	2.5 (1.8)	1.9 (1.1)	3.0 (1.8)	4.0 (1.5)	1.0 (0.0)	1.8 (1.3)
1 to 2 year olds	4.2 (1.3)	2.4 (1.7)	2.4 (1.6)	2.1 (1.6)	4.3 (1.1)	1.0 (0.2)	1.7 (1.3)
2 to 3 year olds	4.2 (1.3)	2.2 (1.5)	2.6 (1.5)	1.9 (1.4)	4.3 (1.1)	1.2 (0.8)	1.9 (1.4)
3 to 4 year olds	3.9 (1.5)	2.4 (1.6)	2.6 (1.5)	2.0 (1.4)	4.1 (1.2)	1.1 (0.4)	1.7 (1.3)
4 to 5 year olds	4.0 (1.5)	2.3 (1.6)	2.6 (1.6)	2.2 (1.6)	4.0 (1.3)	1.1 (0.4)	1.6 (1.2)
5 to 6 year olds	4.1 (1.3)	2.2 (1.6)	2.8 (1.6)	1.9 (1.5)	4.1 (1.2)	1.1 (0.5)	1.5 (1.2)

A factor analysis on the reasons for multiple care revealed the existence of two main factors, indicating that parents used multiple care for either reasons that were out of the parents' control, relating to the ease and difficulty of accessing their preferred care, or for reasons that were under the parents' control and were seen as being beneficial to the child.

Items relating to the affordability of child care and the extent to which the families moved were removed from the analyses due to little to no variance in these items: very few parents reported being unable to afford their preferred care or moving away from their preferred care. For all age groups (excluding 0 to 1 year olds and 6 to 7 year olds in which the sample was too small to run reliable analyses) the same two factors emerged: the three questions relating to accessing enough hours of the preferred arrangement, the difficulty in finding childcare available at the required times and the preferred arrangement not being available consistently loaded onto one factor called "out of parents' control". The remainder of the items consistently loaded onto a second factor named "parents' choice".

3.3. Quantity of Non-Parental Care

Table 3.5 below shows the mean number of hours children in each age group spent in each type of child care, for children attending each type of care only (i.e., children who did not attend the type of care are excluded from the analyses). Values of N/A for standard deviations denote situations where only one child in the sample participated in that type of care. Blank cells refer to no children attending that type of care. On average children tended to spend a greater number of hours in Long Day Care, Preschool and Family Day Care than in Grandparent, other relative or other carer forms of child care. This might be expected when considering the longer hours that Long Day Care Centres and Family Day Care Homes are available compared with Preschools. With the exception of the oldest age category, children tended to spend longer hours in Long Day Care and Family Day Care than in preschool. The results also reflect the recruitment of the sample from Long Day Care and Family Day Care.

Table 3.5. Mean (and Standard Deviation) hours in each type of child for children not yet attending school, by child's age.

	Long Day Care	Pre-school	Family Day Care	Grand-parent	Other relative	Other carer
0 to 1 year olds	24.8	0	26.5	11.5	4	9.3
	(12.2)	(0)	(12.2)	(7.3)	(N/A)	(3.9)
1 to 2 year olds	24.9	0	20.6	10.9	10.9	13.2
	(12.0)	(0)	(10.6)	(6.6)	(5.8)	(10.6)
2 to 3 year olds	24.5	33	24.1	11.0	10.4	10.8
	(12.6)	(N/A)	(12.0)	(8.6)	(6.7)	(7.0)
3 to 4 year olds	24.2	14.2	23.5	15.8	10.8	11.5
	(12.4)	(9.0)	(11.7)	(16.5)	(11.3)	(11.8)
4 to 5 year olds	24.2	17.6	20.9	12.9	13.6	10.8
	(11.9)	(9.4)	(10.5)	(13.6)	(14.7)	(10.3)
5 to 6 year olds	22.3	17.8	18.0	15.0	8.0	7.1
	(12.6)	(9.3)	(20.3)	(24.3)	(8.2)	(5.1)

3.4 Changes in Care Arrangements

All parents, both of children who had and had not yet started school, were asked how many times in the past 12 months their child had changed care arrangement. As seen in Table 3.6, the majority of children in all age groups did not change child care arrangement at all, with most of the rest of the children changing one time.

Reasons for changing care setting

Parents were then asked the reasons for changing their child's child care place. The most common reasons for changing their child's care place were that the childcare was more conveniently located and that the previous arrangement became unavailable, with the least common reason being problems with the service such as change of management or conflict and the cost of the service (see Figure 3.2). As seen in Table 3.7, most parents felt that changing their child's childcare place was their choice, though a substantial minority of parents felt the change was definitely out of their control.

Table 3.6. Number of times children changed child care arrangements in the preceding 12 months: numbers (and percentages) of children in each age group who changed child care between 0 and 6 times.

	0	1	2	3	4	5	6
0 to 1 year olds	48 (87.3%)	6 (10.9%)	1 (1.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
1 to 2 year olds	198 (77.3%)	49 (19.1%)	4 (1.6%)	4 (1.6%)	0 (0.0%)	1 (0.4%)	0 (0.0%)
2 to 3 year olds	289 (75.9%)	84 (22.0%)	2 (0.5%)	4 (1.0%)	1 (0.3%)	1 (0.3%)	0 (0.0%)
3 to 4 year olds	315 (79.7%)	71 (18.0%)	4 (1.0%)	4 (1.0%)	0 (0.0%)	0 (0.0%)	1 (0.3%)
4 to 5 year olds	373 (82.2%)	64 (14.1%)	10 (2.2%)	4 (0.9%)	0 (0.0%)	0 (0.0%)	1 (0.2%)
5 to 6 year olds	339 (86.0%)	43 (10.9%)	7 (1.8%)	4 (1.0%)	0 (0.0%)	1 (0.3%)	0 (0.0%)

Figure 3.2. Percentage of parents giving each reason for changing their child's childcare place by age[5].

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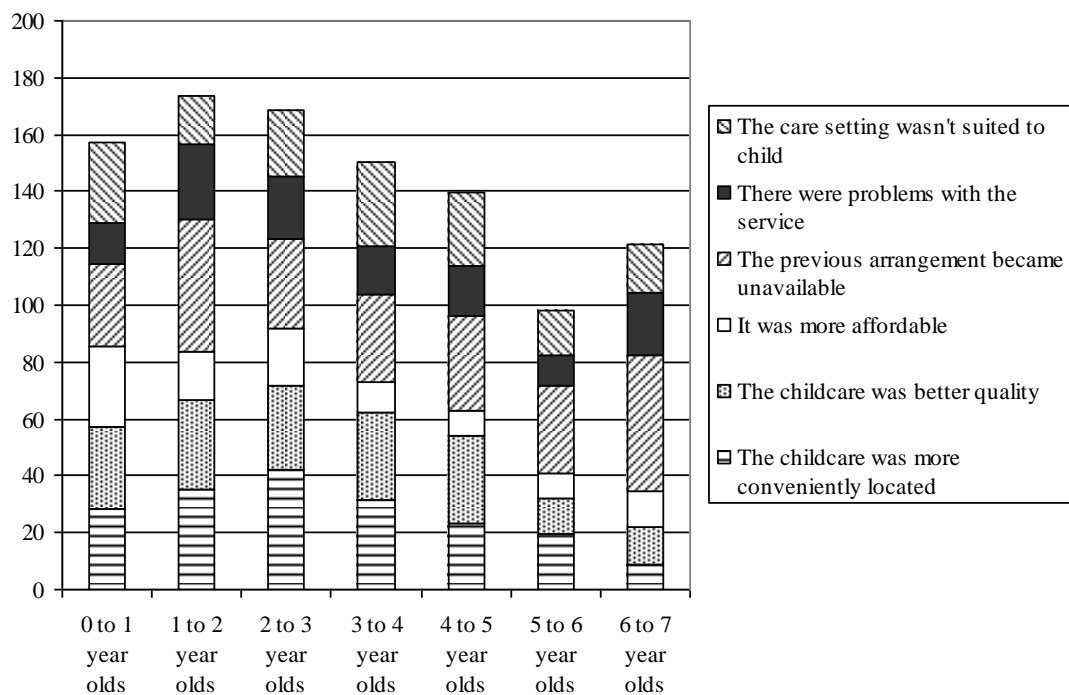
[5] Note that total values for each age group exceed 100% because each parent gave more than one reason for changing their child's childcare place.

Table 3.7. Number (and percentage) of parents of children in each age group who gave each rating regarding the extent to which the change in child care was their choice.

	Definitely your choice	Somewhat your choice	Neither your choice nor something imposed	Somewhat out of your control	Definitely out of control
0 to 1 year olds	2 (28.6%)	2 (28.6%)	1 (14.3%)	2 (28.6%)	0 (0%)
1 to 2 year olds	29 (48.3%)	8 (13.3%)	2 (3.3%)	9 (15.0%)	12 (20.0%)
2 to 3 year olds	52 (54.7%)	7 (7.4%)	6 (6.3%)	18 (18.9%)	12 (12.6%)
3 to 4 year olds	53 (65.4%)	7 (8.6%)	3 (3.7%)	8 (9.9%)	10 (12.3%)
4 to 5 year olds	53 (65.4%)	5 (6.2%)	0 (0%)	8 (9.9%)	15 (18.5%)
5 to 6 year olds	26 (46.4%)	7 (12.5%)	5 (8.9%)	5 (8.9%)	13 (23.2%)

Parents were asked how many times in the preceding 12 months the child's primary caregiver changed in their child care setting. Most children did not experience a change in carer (see Table 3.8).

Table 3.8. Number of times there was a change of carer in the child's care arrangements in the preceding 12 months: numbers (and percentages) of children in each age group whose carer changed between 0 and 6 or more times.

	0	1	2	3	4	5	6 or more
0 to 1 year olds	48 (87.3%)	4 (7.3%)	1 (1.8%)	0 (0%)	0 (0%)	1 (1.8%)	1 (1.8%)
1 to 2 year olds	203 (74.9%)	35 (12.9%)	15 (5.5%)	8 (3.0%)	2 (0.7%)	4 (1.5%)	4 (1.5%)
2 to 3 year olds	236 (59.0%)	100 (25.0%)	35 (8.8%)	15 (3.8%)	7 (1.8%)	2 (0.5%)	5 (1.3%)
3 to 4 year olds	215 (53.9%)	109 (27.3%)	34 (8.5%)	21 (5.3%)	8 (2.0%)	3 (0.8%)	9 (2.3%)
4 to 5 year olds	248 (54.6%)	103 (22.7%)	48 (10.6%)	28 (6.2%)	14 (3.1%)	5 (1.1%)	7 (1.5%)
5 to 6 year olds	268 (68.0%)	53 (13.5%)	39 (9.9%)	19 (4.8%)	4 (1.0%)	6 (1.5%)	5 (1.3%)

Reasons for changing carer

Parents were then asked the reason there was a change in their child's carer. The most common reason for a change in carer was staff turnover, with very few parents citing problems with a caregiver as a reason for a change in carer (see Figure 3.3). The majority of parents of children in each age group felt that this change was definitely out of their control (see Table 3.9).

Figure 3.3. Percentage of parents giving each reason for a change in their child's carer by age[6].
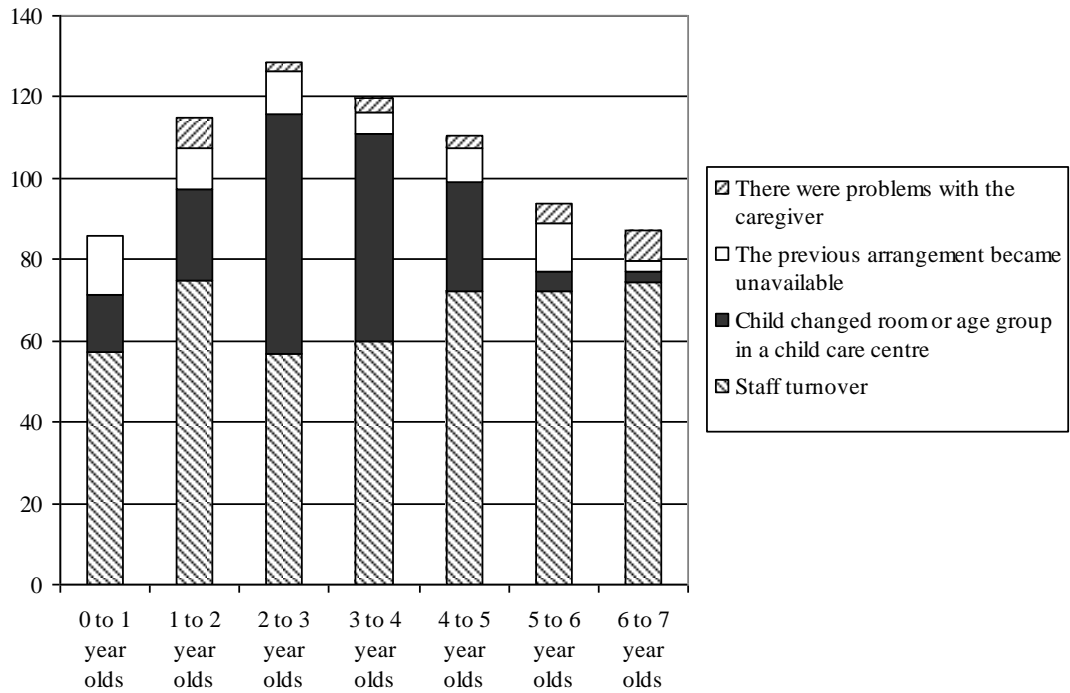
[6] Note that total values for each age group may exceed 100% because each parents gave more than one reason for changing their child's childcare place.

Table 3.9. Number (and percentage) of parents of children in each age group who gave each rating regarding the extent to which the change in child's carer was their choice.

	Definitely your choice	Somewhat your choice	Neither your choice or something imposed	Somewhat out of your control	Definitely out of your control
0 to 1 year olds	0 (0%)	1 (14.3%)	0 (0%)	1 (14.3%)	5 (71.4%)
1 to 2 year olds	5 (7.4%)	3 (4.4%)	8 (11.8%)	3 (4.4%)	49 (72.1%)
2 to 3 year olds	13 (7.9%)	5 (3.0%)	18 (11.0%)	14 (8.5%)	114 (69.5%)
3 to 4 year olds	7 (3.8%)	8 (4.3%)	15 (8.2%)	8 (4.3%)	146 (79.3%)
4 to 5 year olds	7 (3.4%)	5 (2.4%)	13 (6.3%)	15 (7.3%)	166 (80.6%)
5 to 6 year olds	6 (4.8%)	1 (0.8%)	13 (10.3%)	14 (11.1%)	92 (73.0%)

3.5 Quality of Care

Quality of child care was assessed in several different ways. Directors of child care centres were asked for the number of children in the child's room and the number of caregivers in the child's room. The ratio of children to caregivers was calculated from these numbers (see Table 3.10). As might be expected from the NSW Regulation, the younger age groups had smaller child to carer ratios, with children under 2 years of age having on average less than 5 children per caregiver. Children above 4 years of age had on average over 8 children per carer.

Table 3.10. The ratio of children to caregivers in the child's room for children in each age range.

	Minimum	Maximum	Mean	SD
0 to 1 year	3.00	8.00	4.5	1.1
1 to 2 years	2.00	10.00	5.3	1.6
2 to 3 years	2.00	10.00	5.9	1.9
3 to 4 years	4.00	10.00	7.4	1.7
4 to 5 years	3.33	20.00	8.3	1.8
5 to 6 years	4.00	20.00	8.5	2.1

Quality was likewise assessed using the ITERS (infant toddler), ECERS (early childhood) and FDCRS (family day care) scales which use a 7-point rating system (1 = unsatisfactory; 3 = minimum; 5 = good; 7 = high). As seen in Table 3.11, mean ITERS and ECERS scores maintained a 'good' or above average (*M*s of 5.1 to 5.9) throughout the study and for all ages of children. Scores tended to be lower in long day care settings for both younger (*M*s of 5.0 to 5.3) as well as older (*M*s of 5.1 to 5.2) children, but higher in preschool settings (*M*s of 5.3 to 5.8). The difference between ECERS scores for preschools and long day care centres averaged across all ages was significantly greater than chance ($p < .05$). The same pattern held when the sample was split between urban and rural centres.

In contrast, mean FDCRS scores tended to be lower and more varied.

Table 3.11. Mean (Standard Deviations) ratings for ITERS, ECERS and FDCRS by age of child.

	ITERS (Long Day Care)	ECERS (Long Day Care)	ECERS (Preschool)	FDCRS (home care)
0 to 1 year olds	5.1 (0.9)	N/A	N/A	3.6 (0.2)
1 to 2 year olds	5.0 (0.8)	N/A	N/A	4.7 (0.6)
2 to 3 year olds	5.3 (0.8)	5.1 (0.6)	N/A	3.9 (1.2)
3 to 4 year olds	5.2 (0.8)	5.1 (0.6)	5.3 (0.6)	4.5 (0.8)
4 to 5 year olds	N/A	5.2 (0.6)	5.5 (0.6)	4.3 (1.0)
5 to 6 year olds	N/A	5.2 (0. 6)	5.8 (0.6)	4.9 (0.8)

Quality of children's child care experience was also described by carers' and teachers' ratings of their relationship with the study child. Tables 3.12 and 3.13 present means, standard deviations, minimum and maximum scores for overall positive relationship quality (warmth, open communication, reversed conflict and reversed dependence).

Table 3.12. Conflict in teacher-child relationship for children in each age range.

	N	Minimum	Maximum	Mean	SD
0 to 1 year	29	12.00	26.00	18.90	3.59
1 to 2 years	164	12	42.00	21.18	5.28
2 to 3 years	240	12.00	42.00	22.30	6.21
3 to 4 years	277	12.00	51.00	20.74	6.12
4 to 5 years	297	12.00	47.00	20.62	6.47

Table 3.13. Closeness in teacher-child relationship for children in each age range.

	N	Minimum	Maximum	Mean	SD
0 to 1 year	28	28.00	51.00	40.11	5.25
1 to 2 years	164	19.00	54.00	40.21	6.52
2 to 3 years	240	23.00	51.33	41.52	5.85
3 to 4 years	277	25.00	52.00	42.29	5.23
4 to 5 years	297	18.00	53.00	42.26	5.21

The teacher-child relationship was rated by carers and teachers at each age group prior to school using the Pianta Teacher-child Relationship Scale. The degree of conflict and closeness in the teacher-child relationship was similar for the different age groups of children.

3.6   Summary

Care arrangements in children's first year of life were on the whole very stable. Most children had one or two childcare arrangements, with the most common type being long day care. Continuing these trends, across all ages long day care was the most common type of childcare (reflecting recruitment procedures). Parents reported being satisfied with all forms of care but with grandparent care in particular. When families used multiple types of child care, their reasons revealed two main factors. The first related to reasons that were under parents' control such as wanting their child to be able to interact with different adults and children and wanting their child to have a range of experiences to learn new things. The second factor related to reasons that were out of parents' control such as accessing enough hours of the preferred arrangement and the difficulty in finding childcare available at the required times. The number of hours children spent in child care was quite variable across types of care and age of children, with longer hours being spent in long day care and family day care than in preschool or grandparent care. The majority of children in all age groups did not change child care arrangement or carer at all, with most of the other children changing one time only over a 12 month period. Lastly, there was a trend towards higher quality care in long day care centres and preschools than in family day care homes.

CHAPTER 4   TRANSITION TO SCHOOL AND SCHOOL EXPERIENCE

Chapter 4 presents the results of questions asked of parents about their child's transition to school and first year at school. It has considerable detail about the reasons parents gave for their activities and choices around this crucial time of transition for their child. While the focus is still on non-parental care at these times, information is presented about school transition and family links with schools when their child is in Kindergarten.

4.1 Transition Experiences Prior to Entering School

Parents of 392 children in Kindergarten were asked to indicate their experiences of transition to school programs/activities, and when appropriate to rate the extent to which a variety of transition to school programs were helpful for children to make the transition to school on a 1 to 5 scale (1 = not at all helpful; 5 = very helpful). The number of transition experiences used is summarised in Table 4.1.

Table 4.1 Number of transition experiences used

Number of transition activities	Number of families	Percentage
1	1	0.3
2	5	1.5
3	9	2.6
4	11	3.2
5	25	7.3
6	42	12.2
7	48	14.0
8	73	21.2
9	130	37.8
Total	344	100.0

As seen in Figure 4.1, for these parents the most helpful transition to school programs were attending an orientation program at the school and visiting the school open day with a parent. The least helpful experiences were visiting the school informally when collecting older siblings or friends, attending a school function other than an open day or orientation and visiting the school with the child's preschool or child care class.

Figure 4.1. Mean ratings of helpfulness by parents of Kindergarten children of each transition program.
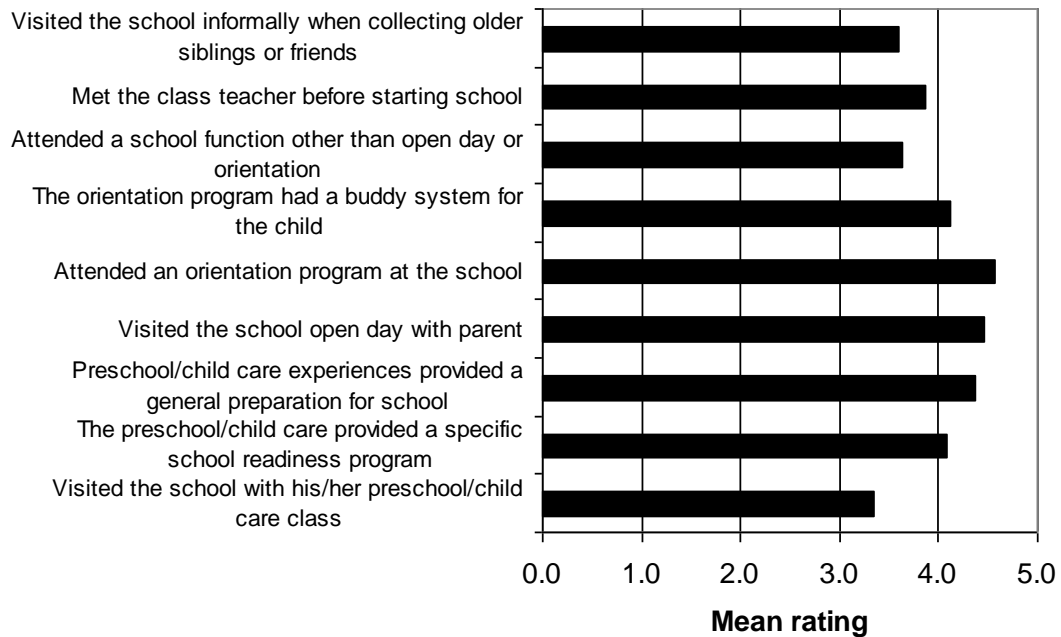
In addition, parents rated the extent to which a variety of activities might have helped them to prepare their child for school. These activities were generally rated highly, with the most helpful activities being attending a parent orientation session at the school and receiving a mail-out information package (see Figure 4.2). The least helpful activities were receiving a phone call from the school and attending a parent education program on preparing the child for school.

Figure 4.2. Mean ratings of helpfulness by parents of Kindergarten children for school preparation activities.
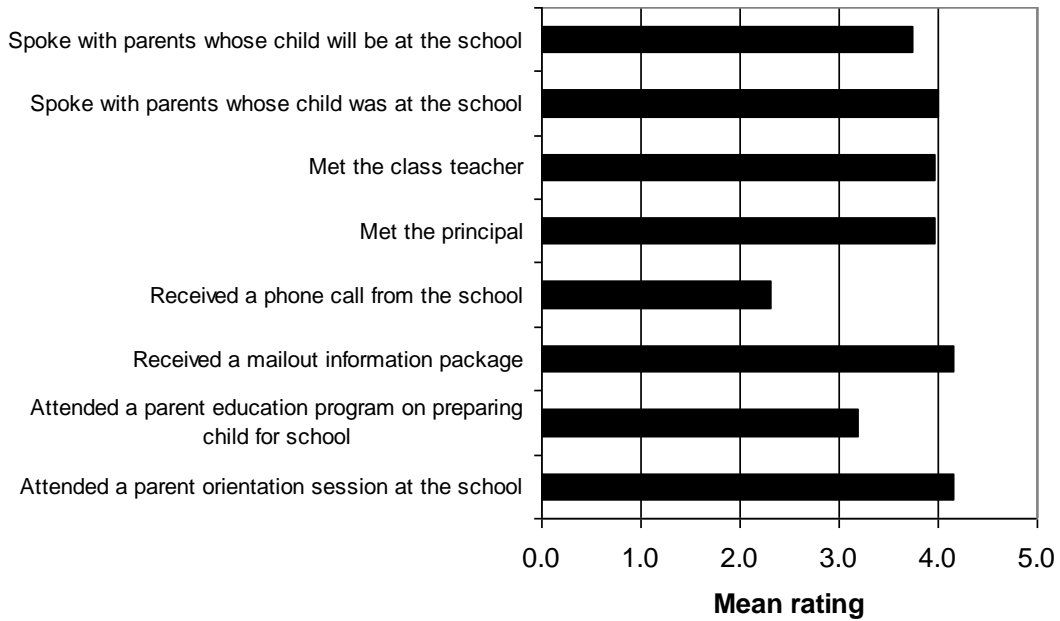
4.2 School Entry

Parents were asked to rate on a scale of 1 (does not apply) to 5 (definitely applies) the extent to which a variety of factors influenced their decision to start their children in school. Those who delayed their children starting school were asked an additional set of questions regarding the reason for the delay. Ratings reported here were taken in the year the child started school. Figure 4.3 below gives the mean ratings for each of the 14 reasons. The strongest reason for starting children in school is that the child was ready to learn, followed by the child being independent enough, the emotional and social readiness of the child and the age of the child. The cost of child care, recommendations from family and friends and what the child's friends were doing were least likely to apply to the decision to start the child in school.

Figure 4.3. Mean ratings of reasons for decision to start the child in school.
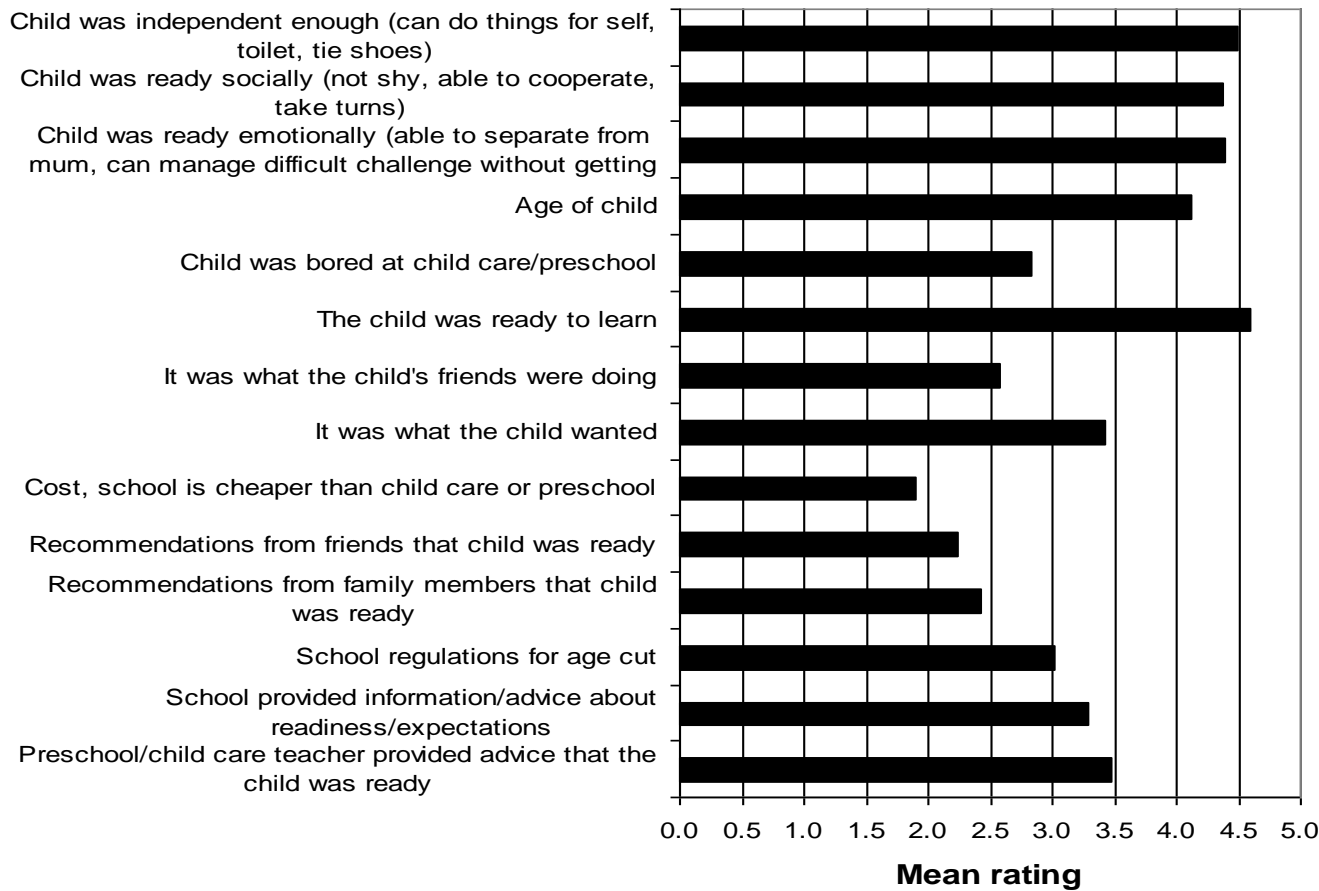
Seventy-eight children (19.9%) were reported to have been delayed in starting school. Again parents were asked the reason for the decision to delay their child's start in school. Figure 4.4 below gives the mean ratings for each reason. The most common reason for delaying the child's start of school was the age of the child. It was the only reason rated as definitely applying by over half of respondents. Recommendations from friends and family, what the child's friends were doing and school regulations for age cut-off to start school were least likely to apply to the decision to delay the start of school.

Figure 4.4. Mean ratings for decisions to delay the child's starting school.
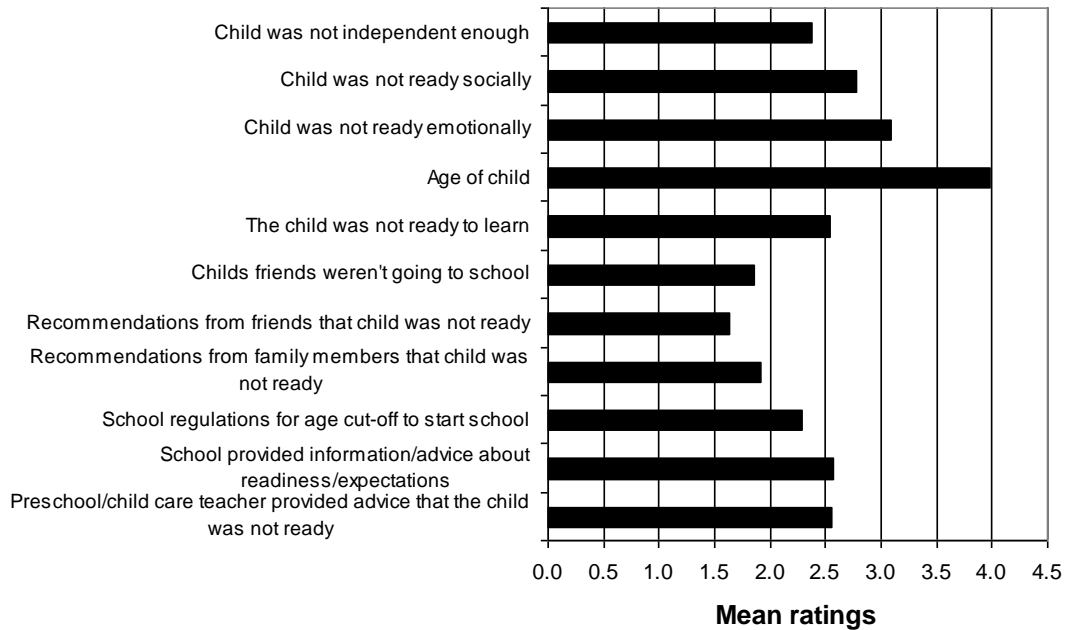
Type of school

The majority of children in the Kindergarten sample attended Government schools (264 children, 67.3%), with the remainder attending either systemic Catholic schools (98 children, 25.0%) or Independent schools (30 children, 7.6%).

Reasons for choice of school

Using the same scale between 1 (does not apply) to 5 (definitely applies), parents rated their reasons for choosing their child's particular school. Again, ratings reported here are from the year the child started school. Figure 4.5 below gives the mean ratings for each reason for choosing their child's school. The strongest reasons for choosing the school were the environment in the school and the location of the school, followed by the potential for parent involvement in the school and the academic reputation of the school. Whether the child's siblings attended the school was very frequently rated as either definitely applying or as not applying at all to the decision to choose the school in question. This dichotomy represents a split between children who did and did not have older siblings at school. The cost of the school, whether the school provided special services for children with learning disabilities, and whether the primary school was a feeder for a preferred secondary school were also unlikely to apply to the decision to choose the school.

Figure 4.5. Mean ratings for each reason for choosing the child's school.
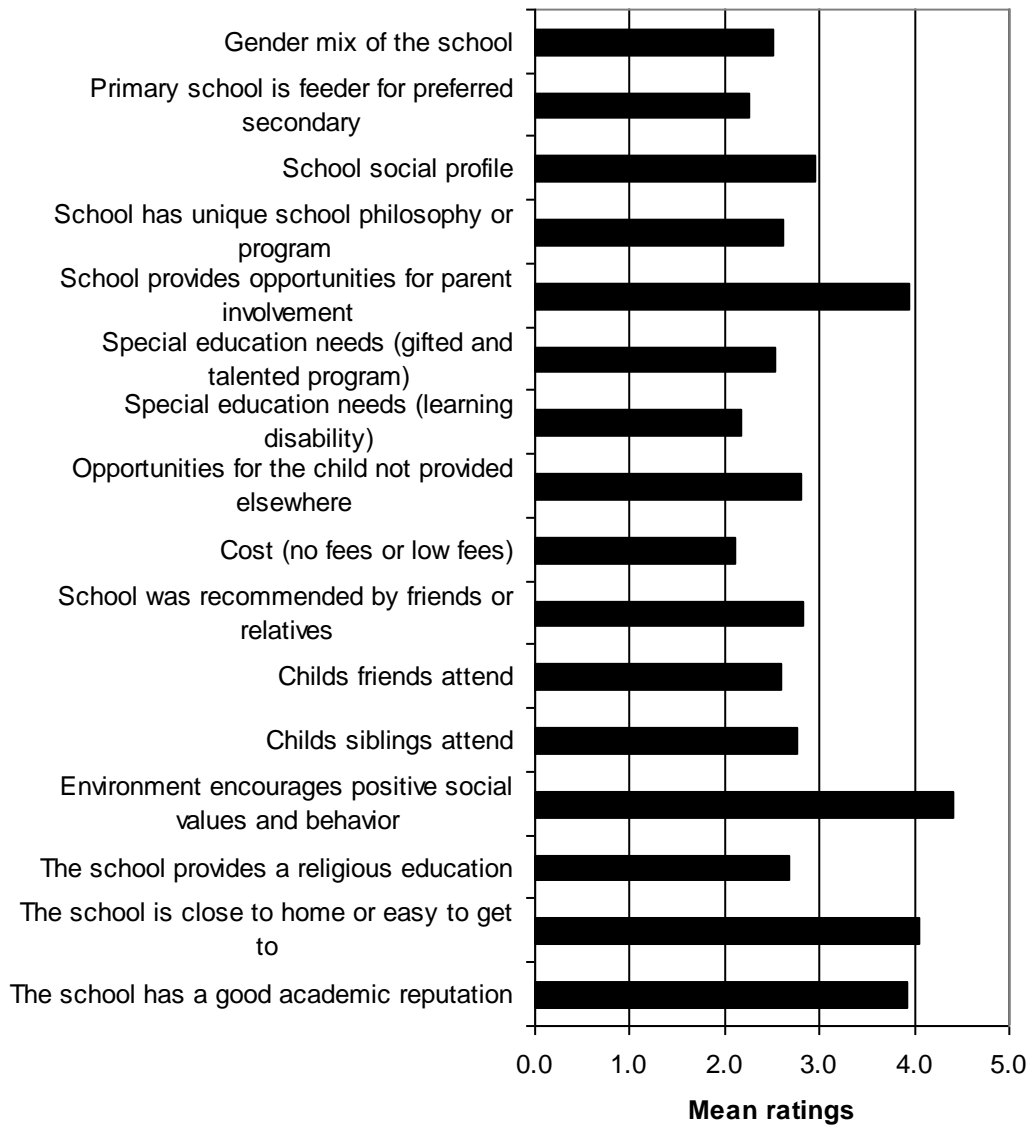
Changes to school

Overall school arrangements were more stable than childcare arrangements. Only five Kindergarten children had changed school in the preceding 12 months and all of those children had changed school only once in that time. The parents provided a range of reasons for the change (see Table 4.1), with over half of parents not giving a reason. No parents reported the change was a result of the school closing down. Care should be taken in interpreting these data however due to the small sample size.

Table 4.2. Number (and percentage) of parents whose children changed school in Kindergarten who answered Yes and No for each reason for the change.

	Yes	No
The school was more conveniently located (e.g., to home/work)	1 (20%)	4 (80%)
The school was better quality	2 (40%)	3 (60%)
It was more affordable	0 (0%)	5 (100%)
There were problems with the school (e.g., change of teacher, conflict about policy)	2 (40%)	3 (60%)
The school wasn't suited to child	1 (20%)	4 (80%)
Child wanted to change school	2 (40%)	3 (60%)
A place came available in my preferred school	0 (0%)	5 (100%)
The school closed down	0 (0%)	5 (100%)
None of these	2 (40%)	3 (60%)

4.3 Parent Satisfaction and Involvement with their Child's School

Again using a rating scale between 1 and 5, over half of parents said they were very satisfied with the school (52.3%), with only 0.5% of parents (2 respondents) saying they were not at all satisfied.

Parents of children in Kindergarten were asked a series of questions relating to their interactions with their child's teacher (Table 4.3) and their involvement with school activities (Tables 4.4 and 4.5). The majority of parents was comfortable with and enjoyed talking to their child's teacher and over half the parents agreed strongly that they had a good relationship with their child's teacher.

Table 4.3. Mean (and standard deviation) *ratings ranging from 1 (Strongly agree) to 5 (Strongly disagree) by parents regarding interactions with their child's teacher.*

	Kindergarten
I am comfortable approaching my child's teacher	1.5 (1.1)
I enjoy talking to my child's teacher	1.6 (1.0)
Talking with my child's teacher leaves me frustrated	4.4 (1.1)
I have a good relationship with my child's teacher	1.7 (1.0)

Around half the parents of Kindergarten children reported having been to a parent committee meeting but the majority of parents reported having had both formal meetings and informal chats with teachers and other parents. While over half the parents of Kindergarten children helped their children with homework every day, less than half of parents in both year groups reported ever having helped with reading in the classroom. Between 60% and 70% of parents had helped with other school activities (see Table 4.4).

Table 4.4. Number (and percentage) of parents who were or were not involved in a variety of school activities for Kindergarten children.

	Yes	No
Attended a parent committee meeting (P&C, parents and friends)	166 (42.3%)	226 (57.7%)
Attended a formal parent-teacher interview	357 (91.1%)	35 (8.9%)
Had informal discussions with teacher about my child's progress	370 (94.4%)	22 (5.6%)
Had informal chat with teacher at a social activity	251 (64.0%)	141 (36.0%)
Talked with other parents whose children also go to school	375 (95.7%)	17 (4.3%)

Table 4.5. Parents' involvement with school activities for Kindergarten and Year 1 children.

	Every day	Several times a week	Weekly	Fort-nightly	Several times a term	Once a term	Once a year
Helped child with homework	237 (60.5%)	124 (31.6%)	19 (4.8%)	2 (0.5%)	1 (0.3%)	4 (1.0%)	0 (0%)
Helped in the classroom with reading	3 (0.8%)	15 (3.8%)	80 (20.4%)	16 (4.1%)	27 (6.9%)	22 (5.6%)	7 (1.8%)
Helped in other school activity (canteen, excursion sport)	1 (0.3%)	5 (1.3%)	33 (8.4%)	14 (3.6%)	97 (24.7%)	71 (18.1%	10 (2.6%)
Organised for your child to spend time outside school with children in his/her class	3 (0.8%)	24 (6.1%)	77 (19.6%)	72 (18.4%)	144 (36.7%)	32 (8.2%)	3 (0.8%)

4.4 Family Support for Children's Learning

Literacy support

Parents were asked about the extent to which they read with their child at home on a scale of 1 (does not apply) to 4 (definitely applies). Most families spent regular time reading books with/to the child, as shown in Table 4.6.

Table 4.6 Time spent reading with the child at home

Rating	Number of families	Percent
1	7	2.0
2	28	8.1
3	109	31.7
4	200	58.1
Total	344	100

Shared home activities

Parents also were asked to rate using the same scale as for reading the extent to which they spent time with their child in a range of six other activities, including telling a story, drawing pictures or using art/craft materials, playing music or singing/dancing, playing with toys or indoor games; playing computer/video games; playing outdoor games or exercising/walking/cycling/swimming; involving the child in everyday home routines such as cooking or caring for pets.

On average, families indicated a moderately high level of involvement with their child in shared activities; $M = 2.49$, $SD = 0.48$).

4.5 Child Care During the First Year of School

Parents were asked about care arrangements made for their child when they had started school. Across waves, 115 Kindergarten children went to before or after school care at a nearby school (29.3%), the majority of those going to only one care setting (111 children). In addition, 21 children went to a non-school-based before or after school centre, two children attended a Long Day Care Centre, and 11 attended Family Day Care. Informal care arrangements were used by a significant number of children: 55 were cared for by an individual other than a relative such a nanny or neighbour, 84 were cared for by a grandparent, and 29 were cared for by another relative.

Amount of care was calculated in hours per week for formal care settings ($M = 2.09$, $SD = 4.94$) and informal care settings ($M = 2.63$, $SD = 5.95$).

Half of Kindergarten children in the study (193 children, 49.2%) attended vacation care during the school holidays. The most common type of care for Kindergarten children was care by the respondent's partner, followed by care provided by a grandparent or a care program at school. Parents of Kindergarten children were generally satisfied with vacation care, with 48.7% of parents stating they were very satisfied with the care their children received as rated on a scale from 1 to 5.

4.6 Classroom Quality in the First Year of School

The study child's Kindergarten classroom was rated on three dimensions of the learning environment using the Classroom Observation Instrument-Kindergarten (COI-K). The three dimensions are: Classroom Management, Social Climate and Instruction. Results are presented in Table 4.7.

Table 4.7. Descriptive statistics for Kindergarten classroom quality

	Minimum	Maximum	Mean	SD
Management	5.00	15.00	10.05	1.79
Social climate	11.00	25.00	19.82	3.06
Instruction	2.00	10.00	6.66	1.53

Scores for each of the three dimensions were distributed across the full range of possible scores (5 to 15 for the 3-item Management scale; 5 to 25 for the 5-item Social Climate scale and 2 to 10 for the 2-item Instruction subscale). Mean scores were at or above the mid-point suggesting that on average the indicators of quality were observed "sometimes".

4.7   Summary

The majority of children attended multiple programs or events related to transition to school. Parents reported that the most helpful were orientation programs

at the school and visiting the school's open day. In addition, parents tended to rate highly activities that helped them to prepare their child for school. The strongest reason for starting children in school was that the child was ready to learn. Around 20% of children were reported to have been delayed in starting school. The most common reason for delaying the child's start of school was the age of the child.

The majority of children in the Kindergarten sample attended Government schools, with around a third of children attending either systemic Catholic schools or Independent schools. The strongest reasons for choosing the school were the environment in the school and the location of the school. Overall, school arrangements were more stable than childcare arrangements, with only five Kindergarten children changing school in the preceding 12 months. Most parents reported being satisfied with the school. Half of children attended before- and after-school and vacation care.

Most parents were comfortable with and enjoyed talking to their child's teacher and over half of the parents agreed strongly that they had a good relationship with their child's teacher. While around half of parents of Kindergarten children reported having been to a parent committee meeting at their child's school, the majority of parents reported their school involvement as formal meetings and informal chats with teachers and other parents. Most families spent regular time reading books with their child, with families indicating a moderately high level of involvement with their child in shared activities other than reading.

CHAPTER 5   CHILD DEVELOPMENT OUTCOMES

The results presented in Chapter 5 describe the children's development during the year before entering formal school and their first year at school (Kindergarten). Developmental outcomes were selected to describe (1) achievement in early literacy and numeracy and (2) adjustment, including academic, social, behavioural, and attitudinal aspects of adjustment in preschool/child care and school. Achievement was assessed using standardized tests administered to the child by a trained research assistant. Adjustment was assessed using questionnaire measures completed by the study child's classroom teacher or parent, or during an interview with the child. Adjustment measures were drawn from the child development literature and on the basis of having a record of successful use in Australian samples.

5.1 Achievement: Year before School and Kindergarten

Achievement outcomes were primarily measured using the Woodcock Johnson Psycho-educational Battery. Three subscales of the Woodcock Johnson were measured: Applied Problems, Spelling and Letter Word Identification. The Woodcock Johnson subtests yield total scores and age equivalents (in months). Table 5.1 gives the total scores and age equivalents of children in the year before school and Kindergarten on each subscale of the Woodcock Johnson.

Table 5.1. Mean (and standard deviation*) total scores and age equivalents on the three subscales of the Woodcock Johnson for children in the year before school and Kindergarten.*

		Applied Problems	Spelling	Letter Word Identification
Year before school	Total score	16.2 (4.0)	10.5 (4.0)	10.6 (7.0)
	Age equivalent	65.6 (8.6)	66.2 (10.4)	63.6 (12.3)
Kindergarten	Total score	20.7 (3.9)	18.3 (4.1)	24.7 (8.0)
	Age equivalent	76.0 (10.2)	83.7 (8.2)	82.1 (9.1)

5.2 Adjustment: Year before School and Kindergarten

Adjustment was measured by multiple respondents: teachers, parents, and the children themselves. Children were asked to provide a simple rating to describe their experiences and feelings about school, their teachers and peers. Parents were asked to rate their child's social and emotional strengths and difficulties. The children's teachers provided information about three aspects of children's adjustment: approaches to learning, social and emotional strengths and difficulties and the nature of the relationship they had formed with the child in question.

Social and emotional strengths and difficulties

Parent and teacher ratings for the Strengths and Difficulties Questionnaire are presented in Table 5.2. Results are presented for the prosocial scale and the total

difficulties score, for transition and Kindergarten. Each statement was rated as being "not true", "somewhat true" or "certainly true" for the child. Children were generally reported to be well adjusted with few difficulties. The most common difficulties reported were restlessness and being overactive, temper tantrums and being easily distracted.

Table 5.2. Mean (and standard deviation*) ratings for prosocial and total difficulties in the Year before school and Kindergarten as reported by parents and teachers.*

		Parent-rated		Teacher-rated	
Year before school	Prosocial	8.15	(1.60)	7.86	(2.19)
	Total difficulties	7.19	(4.98)	4.75	(5.53)
Kindergarten	Prosocial	8.15	(1.64)	7.23	(2.29)
	Total difficulties	7.32	(5.05)	5.14	(6.13)

Student-teacher relationship

Teachers in the Year before school and Kindergarten Years were asked to rate a series of statements regarding their relationship with the child. Overall teachers reported a positive relationship with children, with few teachers reporting negative interactions or experiences with the children. Results are presented for two subscales: conflict and closeness.

Table 5.3. Mean (and standard deviation*) ratings for conflict and closeness in the student-teacher relationship in the Year before school and Kindergarten as reported by teachers.*

	Closeness		Conflict	
Year before school	43.35	(5.40)	20.02	(6.79)
Kindergarten	43.04	(5.28)	20.01	(6.02)

Approach to learning

Children's adjustment to the learning demands of school was assessed by asking teachers to complete the Classroom Behaviour Inventory. This 42-item questionnaire generates an 'Approach to Learning' scale by combining five subscale scores: task orientation, dependence (reversed), distractibility (reversed), creative and curious, and shows intelligent behaviour in class. Subscale ratings were averaged to produce an overall score (M = 3.75; SD = 0.77).

Feelings about school, the teacher, and peers

In Kindergarten, children were asked a series of questions relating to their feelings about school. Children were asked to answer each question with "No" (rating of 1), "Sometimes" (rating of 2), or "Yes" (rating of 3). Responses were spread across these three options for each of the 23 questions. In the main, however, the responses indicated that children were positive about their experiences in school, for peer and teacher relationships (see Figure 5.1).

Three subscales were computed from the data: school liking, teacher liking, and peer liking. Descriptive data for these scales are presented in Table 5.5

*Table 5.4. Mean (*and standard deviation) ratings *for Kindergarten children's feelings about school, their teachers, and their peers at school*

	School liking		Teacher liking		Peer liking	
Kindergarten	2.57	(0.53)	2.68	(0.39)	2.50	(0.45)

Figure 5.1. Percentage of children who answered "No", "Sometimes" and "Yes" to each Feelings about School question.
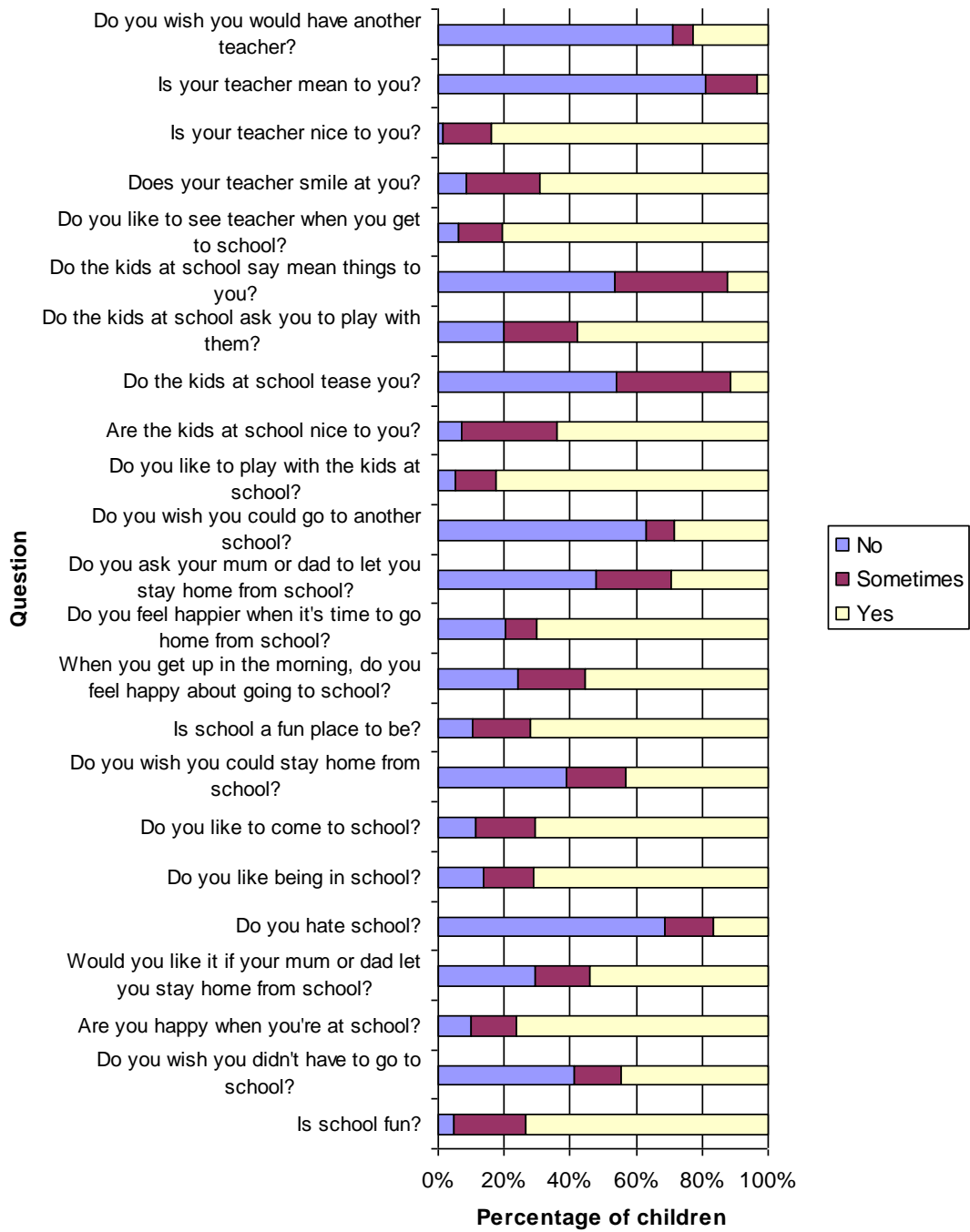
CHAPTER 6   PREDICTORS OF CHILD DEVELOPMENT OUTCOMES

6.1 Predictor Variables

In keeping with the ecological model that informed the design of the Child Care Choices study, children's development was seen as being influenced by a number of inter-related factors and contexts. The richness of the Child Care Choices data set, which used multiple waves of data collection and multiple informants, enabled the selection of a comprehensive set of predictor variables. These were grouped, as follows, for entry into regression equations to predict outcomes in the year before school entry, and in the child's first year of school. The first five groups of variables were used as predictors for all outcomes; the last three groups of variables were added as predictors of outcomes in Kindergarten.

Child characteristics were described by three variables: 1) gender, 2) age at the time of the assessment (year before school and Kindergarten), and 3) temperament as reported by parents in Wave 1.

Family characteristics were described by six variables: 1) mothers' level of education, 2) maternal wellbeing as represented by depressive symptoms, 3) mothers' access to supportive social relationships, 4) mother-child relationship quality, 5) family income and 6) the number of children in the household at the time of the assessment (year before school and Kindergarten). Variables 1 and 2 were reported in Wave 1; variables 3 and 4 were averaged across the early waves of data collection, that is, up to the year before the child entered school.

Child care history was based on a comprehensive set of information gathered in the early waves of the Child Care Choices study, including the type, amount, multiplicity, changeability and quality of care received. Seven variables were created to summarise care experiences up to the year before children entered school: 1) age of entry to child care (first care arrangement); 2) average weekly hours of formal care (in regulated child care centres or family day care homes); 3) average weekly hours of informal care (in unregulated home-based care settings such as relative care, nannies, etc); 4) average number of care arrangements per week; 5) average number of changes of carer or centre in a 12-month period; 6) average rating of observed quality on the Infant-Toddler Environment Rating Scale (ITERS), Early Childhood Environment Rating Scale (ECERS), or Family Day Care Rating Scale (FDCRS); 7) average rating of carer-child relationship quality.

Children's early development was also based on the comprehensive range of data gathered in the early waves of the Child Care Choices study; that is, up to the year before children entered school. Multiple informants provided reports or assessments on children's social and emotional skills, behavioural problems, communication and language, and early understandings of numeracy. A total of nine variables was created. Four variables summarized parents' reports on their children's early development: 1) communication ability; 2) average ratings of positive social skills (adaptive behaviour with peers); 3) average ratings of negative social skills (aggressive behaviour with peers); 4) behaviour problems. Three variables were created from reports gathered from the child's carers: 1) average ratings of positive social skills (adaptive behaviour with peers); 2) average ratings of negative social skills (aggressive behaviour with peers); 3) behaviour problems. Two variables were based on child assessments conducted by

research assistants when the child was age three to four: 1) receptive vocabulary as assessed by the Peabody Picture Vocabulary Test; 2) early numeracy as assessed by the Applied Problems scale of the Woodcock-Johnson Psycho-Educational Battery.

Children's experience of child care/preschool in the year before school was described by four variables: 1) weekly hours of formal care (in preschool, child care centres, or family day care homes); 2) weekly hours of informal care (in unregulated home-based care settings such as relative care, nannies, etc); 3) number of care arrangements per week; 4) rating of observed quality on the Early Childhood Environment Rating Scale (ECERS).

Children's experience of outside school hours child care after they had started Kindergarten was described by two variables: 1) weekly hours of formal care (in regulated before/after school care settings); 2) weekly hours of informal care (in unregulated home-based care settings such as relative care, nannies, etc).

Family support for child's learning was described by three variables based on parent report: 1) the number of transition to school activities that the child attended; 2) parents' support for literacy – reading to the child at home; 3) shared family activities.

The child's classroom environment in Kindergarten was assessed by a research assistant during a visit to the child's school. Three subscale measures were used to describe different aspects of the environment: 1) management; 2) social climate; 3) instruction.

In total, 30 predictor variables were included in analyses of developmental outcomes in the year before children entered formal schooling, and 38 predictor variables were included in analyses of developmental outcomes in Kindergarten. Descriptive statistics for each set of predictors are provided in Appendices 2 and 3.

6.2 Method of Analysis

Distributions and Transformations

The distributions of dependent variables were inspected, and the variables for which the absolute value of the skewness index was greater than one were transformed. Six of the 10 dependent variables in the year before school analyses were identified to be transformed, along with six of the 13 dependent variables in the Kindergarten analyses. The following methods of transformation were used (in ascending order of rectifying power): square root, logarithmic or reciprocal functions. The scales of variables which were negatively skewed were reversed before transformation, and reversed again following transformation in order to preserve the direction of their relationships with the independent variables. As a consequence of this step in the analysis, the absolute values of the skewness indices for the distributions of all the dependent variables were equal to or less than one.

Data Imputation

In order to make the best possible use of the data which, as they were collected in six yearly waves, inevitably contained a substantial number of missing values, multiple imputation was used to provide a more effective data set for analyzing predictive effects. Imputation involves the replacement of missing data by values

derived from the regression of the relevant variables on other variables in the dataset. Multiple imputation overcomes the problem of even the most sophisticated single-imputation procedures, which is that the resulting imputed dataset contains no information about the likely accuracy of the imputed values; in such datasets the imputed values for variables which are not related to the other variables are given as much weight as imputed values for variables which are strongly related to one or more of the other variables.

By producing a number of datasets which contain imputed values that have been drawn randomly from the posterior distribution of predicted values, multiple imputation allows the incorporation of information about the between-dataset variability of the results of the analyses as well as information about the within-dataset variability (conventional standard errors). Following the rules proposed by Rubin (1987), indices of the variability of regression coefficients are derived from a combination of within- and between- information so as to reflect the consistency of the imputed values over a number of imputations (as few as five imputed datasets can provide satisfactory estimates of the variability). Further information about multiple imputation is given in Sinharay, Stern & Russell (2001).

The analyses reported in the following sections of Chapter 6 were based on multiple imputed datasets produced by the multiple imputation procedure in SPSS 17 (SPSS Inc, 2008). Ten such datasets were produced for analyses of dependent variables in the year before school and also for dependent variables in the Kindergarten year. The subsequent analyses were carried out with the multiple regression procedure in SPSS 17, which has the ability to produce pooled estimates based on multiple datasets.

The imputed datasets were derived from a subset of cases drawn from the parent dataset, which comprised 677 cases. A separate subset was drawn for the year before school and Kindergarten analyses. Cases were selected for the year before school subset if they had missing values on no more than nine of the 38 variables (dependent and independent) which were to be involved in the analyses. Cases were included in the Kindergarten dataset if they were missing on no more than 15 of the 51 variables to be used in the analyses[7].

Application of these criteria resulted in datasets containing 319 and 344 cases respectively and in which fewer than 10% of values were missing and were therefore subject to imputation.

Regression analyses

A series of analyses were carried out for each dependent variable. In the first, all of the selected independent variables were entered together to provide a full model, based on the pooled results for the 10 imputed datasets. In the second, a variable selection procedure was used to arrive at a reduced model. Given the relatively large number of independent variables in each of the full models (30 for prediction of year before school outcomes; 38 for prediction of Kindergarten outcomes), it was determined that reduced models, interpreted in conjunction with the full models, would give useful information about the relative importance of the various independent variables.

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[7] Subsequently a new dependent variable was added and two potential independent variables were not used.

In the first step of these analyses, the variable showing whether a child was in the urban or rural sample was entered, to control for the sampling procedures used in recruitment of families and children. This variable was not considered for elimination from the model. In the second step, an automatic variable selection procedure was used in which variables from each of the domains (described above) were entered as a group, then considered for elimination using a criterion of $p = .05$; that is, variables which had regression coefficients significantly different from zero at $p = .05$ were retained, while other variables in the domain were dropped. At the next step, all the variables for the next domain were entered into the model, joining the urban-rural variable and the variables which had survived the previous step; and so on.

There are distinct drawbacks to the use of automatic variable selection procedures in terms of the replicability of the results on other samples and the arbitrariness of the decision to retain one variable and drop another which may be equivalent in predictive power. In the present case which used domain-based reductions, we felt that the use of this method (in combination with the full model analysis) was justifiable.

One of the problems of using an automatic variable selection procedure with multiple imputed datasets is that a different reduced model may emerge for each of the imputed datasets, which means that it is not possible to derive pooled estimates for each of the regression coefficients. To sidestep this problem, we adopted a strategy suggested by Mehta, Rustagi, Kohli and Tiwari (2007) in which a preliminary analysis is carried out on a single imputed dataset, followed by a test of the resulting reduced model, based on the multiple datasets, so that pooled estimates are then obtained.

Two points should be made explicit here. One is that the domain-by-domain selection procedure can arrive at a reduced model which contains variables which are not significant at the criterion probability. This occurs because once a variable has been retained as part of one domain it is not reconsidered after variables from later domains have been entered. The adjustment for these later variables may result in variables retained in an earlier step becoming non-significant.[8] The second point is that variables retained, and significant, after the final step of the domain-by-domain procedure, may be non-significant when the reduced model is tested with the multiple imputed datasets. This is to be expected, and shows the value of the multiple imputation procedure: the variables which become non-significant are more likely to be those which have a substantial number of missing values, and which are not very well predicted by other variables. Given these considerations, we extended the procedure outlined by Mehta, Rustagi, Kohli & Tiwari (2007) by carrying out a further variable reduction based on the analyses with the multiple imputed datasets to arrive at a final model in which each variable (except the urban-rural variable, which was retained in all models) was significant at $p < .05$.

All independent variables were either numeric (scalar) or two-category categorical (binary), so variables could be entered and dropped without reference to other variables. A possible exception was the variable showing mother's education which was, at best, ordinal categorical. However, preliminary analyses showed that all

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[8] A corresponding possibility is that a variable dropped at an earlier stage may have been significant if tested in conjunction for a variable entered at a later stage. However, the initial consideration of the full model provides a possible corrective for the disadvantages of this possibility.

dependent variables, had either no relationship, or a purely linear one, with mother's education. This variable was therefore entered as single degree of freedom predictor.

In order to aid interpretation and evaluation of the models, standardised regression coefficients (Beta, β), and multiple, zero-order, part and partial correlation coefficients (*r*), together with their squared counterparts, were calculated for each model by taking the mean of the coefficients over the results for each imputed dataset. Standardised regression coefficients (β) are what would be obtained if all variables, including the dependent variable, were standardised to have a mean of zero and a standard deviation of one. Reporting β values facilitates the comparison of the contribution of each independent variable.

Squared part correlations show the variance of the dependent variable accounted for by an independent variable, adjusted for other variables in the model, as a proportion of the total variance of the dependent variable. Squared partial correlations show the variance of the dependent variable accounted for by an independent variable, adjusted for other variables in the model, as a proportion of the total variance of the dependent variable minus the variance accounted for by other variables. The partial correlation will usually be larger than the part correlation, as the denominator used to calculate it will usually be smaller than the total variance of the dependent variable. Both coefficients are useful when interpreting models. Zero order correlations are also useful, as they show the relationship between an individual independent variable and the dependent variable, unadjusted for other variables in the model.

In this chapter, tables are used to report findings for the full model. For ease of reading, standardised regression coefficients (β values) and the zero order correlations (*r*) for each predictor. Where these figures differ, this is due to the adjustment for other variables in the model. The results for the second stage of analysis, which generated a reduced model for each of the dependent variables, include the standardised regression coefficients (β) and squared partial correlation for each of the retained variables.

6.3 Predictors of Child Achievement and Adjustment in the Year before School

Results of a series of regression analyses are presented for each of dependent variables. In each case, the full model is presented as a table, with standardised regression coefficients (β values) and the zero order correlations (*r*) for each predictor. Following this, the results for the reduced model are described, with standardised regression coefficients (β) and squared partial correlation for each of the retained variables.

Achievement

Results for children's assessed abilities in numeracy and literacy are presented in Table 6.1. Literacy scores were computed by averaging scores for the Letter-Word Identification and Spelling scales of the Woodcock-Johnson Psycho-Educational Battery, as these scales were highly correlated (*r* = .82).

Table 6.1 Regression analyses to predict children's achievement in early literacy and numeracy in the year before school (full set of predictor variables)

Predictor Variables	Applied problems		Literacy average	
	Beta	(*r*)	Beta	(*r*)
Urban-rural location (recruitment)	-.09	(-.11)	-.16**	(-.19)
Child Characteristics				
Gender (boys = 1; girls = 2)	-.04	(.10)	.02	(.14)
Temperament	-.08	(-.08)	-.07	(-.08)
Age in year before school entry	.13*	(.23)	.23**	(.25)
Family Characteristics				
Mother's level of education	.04	(.14)	.10	(.17)
Family income (current)	.08	(.09)	.01	(.05)
Number of children in household	.01	(-.01)	-.20**	(-.20)
Index of social support	.04	(-.04)	-.08	(-.12)
Parent-child relationship quality	-.06	(.15)	-.08	(.08)
Maternal depression	-.04	(-.12)	-.02	(-.13)
Child Care History				
Age of entry to child care	-.03	(.04)	.03	(.09)
Number of care arrangements	-.09	(.01)	-.18**	(-.08)
Number of changes to carer/centre	.04	(.04)	-.01	(-.04)
Carer-child relationship quality	-.00	(.19)	-.01	(.16)
Quality of care (ITERS/ECERS)	.03	(.18)	.01	(.16)
Weekly hours of formal care	-.10	(-.11)	.05	(-.06)
Weekly hours of informal care	.03	(.03)	.07	(.04)
Early Development				
Positive social skills (Parent rating)	.05	(.05)	.07	(.11)
Negative social skills (Parent rating)	-.13	(-.26)	-.14*	(-.31)
Positive social skills (Carer rating)	-.02	(.11)	-.05	(.09)
Negative social skills (Carer rating)	-.17	(-.23)	-.21*	(-.25)
Behaviour problems (Parent rating)	.11	(-.13)	.12*	(-.13)
Behaviour problems (Carer rating)	.09	(-.04)	.12	(-.01)
Communication ability (Vineland)	.05	(.25)	.16*	(.29)
Receptive vocabulary (PPVT)	.12	(.38)	.06	(.32)
Early numeracy (WJ Applied Problems)	.45**	(.54)	.21**	(.39)
Preschool/Child Care in Year before School				
Quality of care (ECERS)	.02	(.03)	-.06	(-.02)
Weekly hours of formal care	.07	(-.08)	-.23**	(-.23)
Weekly hours of informal care	-.01	(-.02)	.04	(.03)
Number of care arrangements	.03	(-.08)	.00	(-.20)
Total Variance explained R^2	.419		.473	

Note: * $p \leq .05$, ** $p \leq .01$

The full set of predictor variables explained 41.9% of the variance in children's Applied Problems scores and 47.3% of the variance in their Literacy scores.

The full set of predictors was then reduced in a series of stepwise analyses (following the procedures described in Section 6.2) to identify the best set of predictors for each of the achievement outcomes.

Retained variables for numeracy were:

- Current age ($\beta = .14$, $p = .01$; partial $r^2 = .022$)

- Parent-rated negative social skills ($\beta = -.17$, $p < .01$. partial $r^2 = .039$)

- Early numeracy ability as assessed by the Woodcock-Johnson Applied Problems subscale at age 3 to 4 years ($\beta = .47$, $p < .001$, partial $r^2 = .233$)

Of these, early numeracy ability made the larger contribution to the explained variance.

> **Numeracy in the year before school.** Children who were older, showed fewer social problems and had a better aptitude for numeracy in their early development were more likely to achieve higher numeracy scores in the year before school entry. Early aptitude in numeracy was the primary predictor.

Retained variables for Literacy were:

- Current age ($\beta = .23$, $p < .001$, partial $r^2 = .065$)

- Number of children in the household ($\beta = -.21$, $p < .001$, partial $r^2 = .062$)

- Multiple child care in the early years as assessed by the average number of weekly care arrangements ($\beta = -.13$, $p < .01$, partial $r^2 = .025$)

- Current hours of centre-based child care, preschool, or family day care ($\beta = -.21$, $p < .001$, partial $r^2 = .059$)

- Parent- and carer-rated negative social skills (βs $= -.15$ and $-.13$, ps $= .01$, partial $r^2 = .033$ and $.026$, respectively)

- Communicative ability ($\beta = .16$, $p < .01$, partial $r^2 = .037$)

- Early numeracy ability as assessed by the Woodcock-Johnson Applied Problems subscale at age 3 to 4 years ($\beta = .20$, $p < .001$, partial $r^2 = .053$).

Please note that numeracy and literacy scores were highly correlated. The emergence of early numeracy rather than early literacy scores as a significant predictor in the reduced set of predictors can be seen as an artifact of the analysis.

> **Literacy in the year before school.** Children who were older, had fewer siblings, and showed fewer social problems, more communication skills and a better aptitude for numeracy in their early development were more likely to achieve higher literacy scores in the year before school entry. Children who were attending longer hours of child care, preschool, or family day care and had attended a larger number of different care arrangements in their early years were less likely to score highly in literacy.

Adjustment

Two aspects of children's social and emotional adjustment in the year before school are reported. Tables 6.2 and 6.3 present results for prosocial behaviour and socio-emotional difficulties as reported by parents and teachers. Table 6.4 presents results for teacher-child relationship conflict and closeness.

Results for parent-rated and teacher-rated outcomes (Table 6.2) showed different patterns of predictive strength. This is likely because parents and teachers draw on different contexts for appraising the child's behaviour but also because their ratings of social and emotional strengths and difficulties are based on differing expectations and judgments. For this reason, parent and teacher ratings will be discussed separately.

Parent ratings of children's socio-emotional strengths and difficulties

For parent-rated prosocial behaviour, the full set of predictor variables accounted for 30.7% of the variance. Seven of the 30 predictors achieved significance at $p < .05$. For parent-rated socio-emotional difficulties, the full set of predictors explained a larger proportion of the variance (40.0%)

Table 6.2 Regression analyses to predict children's socio-emotional strengths and difficulties in the year before school as rated by parents

Predictor variables	Parent Rated SDQ	
	prosocial	Difficulties
	Beta (*r*)	Beta (*r*)
Urban-rural location (recruitment)	-.13* (-.09)	.03 (.09)
Child characteristics		
Gender (boys = 1; girls = 2)	.13* (.22)	-.09 (-.15)
Temperament	-.18* (-.27)	.04 (-.27)
Age in year before school entry	.10 (.05)	-.10 (-.11)
Family characteristics		
Mother's level of education	-.09 (-.03)	-.14* (-.18)
Family income (current)	.04 (.02)	-.02 (-.07)
Number of children in household	.08 (-.02)	-.06 (-.04)
Index of social support	-.05 (-.06)	.13** (.30)
Parent-child relationship quality	.02 (.15)	-.04 (-.20)
Maternal depression	.16 (.03)	.04 (-.22)
Child Care History		
Age of entry to child care	-.06 (-.04)	.06 (.02)

Number of care arrangements	-.18** (-.13)	.03 (.03)
Number of changes to carer/centre	-.01 (-.03)	.13** (.14)
Carer-child relationship quality	-.17* (.01)	-.02 (-.25)
Quality of care (ITERS/ECERS)	-.00 (.01)	.03 (-.06)
Weekly hours of formal care	.06 (.11)	.04 (.03)
Weekly hours of informal care	.12 (.04)	.04 (.04)
Children's Early Development		
Positive social skills (Parent rating)	.24** (.30)	-.08 (-.22)
Negative social skills (Parent rating)	-.10 (-.26)	.11 (.36)
Positive social skills (Carer rating)	.04 (.13)	-.01 (-.19)
Negative social skills (Carer rating)	-.22** (-.06)	.15 (.26)
Behaviour problems (Parent rating)	-.00 (-.20)	.28** (.46)
Behaviour problems (Carer rating)	.13* (.06)	-.05 (.16)
Communication ability (Vineland)	-.02 (.12)	.03 (-.16)
Receptive vocabulary (PPVT)	.05 (.09)	.03 (-.14)
Early numeracy (WJ Applied Problems)	.14 (.21)	-.08 (-.24)
Preschool/Child Care before School		
Quality of care (ECERS)	.05 (.00)	.09 (.07)
Weekly hours of formal care	.07 (.07)	-.07 (.00)
Weekly hours of informal care	-.06 (-.05)	.05 (.11)
Number of care arrangements	.03 (-.10)	.05 (.12)
Total Variance explained R^2	.307	.400

Note: * $p \leq .05$, ** $p \leq .01$

The full set of predictors was then reduced to identify the best set of predictors for each of the parent-rated adjustment outcomes. Retained variables for prosocial behaviour were:

- Child gender ($\beta = .14$, $p < .01$, partial $r^2 = .022$)

- Temperament ($\beta = -.19$, $p < .001$, partial $r^2 = .040$)

- Parent-rated positive social skills ($\beta = .25$, $p < .001$, partial $r^2 = .065$)

- Carer-rated negative social skills ($\beta = -.13$, $p < .05$, partial $r^2 = .013$)

- Carer-rated behaviour problems ($\beta = .16$, $p < .05$, partial $r^2 = .020$).

- Children's early numeracy ability as assessed by the Woodcock-Johnson Applied Problems subscale at age 3 to 4 ($\beta = .14$, $p < .05$, partial $r^2 = .026$).

- Fewer weekly care arrangements in the early years ($\beta = -.12$, $p < .01$, partial $r^2 = .021$)

Prosocial behaviour in the year before school (parent ratings). Parent-reported prosocial behaviour was higher for girls, and higher for children with an easier temperament and who showed more positive and fewer negative social skills, and greater aptitude for numeracy in their early development. Children who had a history of receiving multiple care were rated as less prosocial.

Retained variables for socio-emotional difficulties were:

- Maternal education (β = -.14, $p < .01$, partial r^2 = .024)

- Maternal social support (β = .14, $p < .01$, partial r^2 = .026), Note: high scores on scale indicate less social support

- Parent-child positive relationship (β = -.11, $p < .05$, partial r^2 = .015)

- Parent-rated negative social skills (β =.13, $p < .05$, partial r^2 = .018)

- Parent-rated behaviour problems (β =.30, $p <.001$, partial r^2 =.098)

- Carer-rated negative social skills (β = .15, $p < .01$, partial r^2 = .031).

- More changeable care in the early years (β = .13, $p < .01$, partial r^2 = .024).

Socio-emotional difficulties in the year before school (parent ratings). Children were more likely to be rated by their parents as having more socio-emotional difficulties in families where mothers had a lower level of education and a less positive relationship with their child and reported less social support from friends and family. Difficulties were also higher in children who had been rated as showing behaviour problems and negative social interaction towards peers during earlier periods of their development and who had a history of having more changes in their child care arrangements.

Teacher ratings of children's socio-emotional strengths and difficulties

Results for teacher-reported socio-emotional strengths and difficulties are presented in Table 6.3. The full set of predictors accounted for a similar amount of the variance for children's prosocial behaviour (R^2 = .302) as noted for parent-reported prosocial behaviour (R^2 = .307), but were less effective predictors of teacher-reported difficulties (R^2 = .252 vs. R^2 = .400 for parent report).

Table 6.3 Regression analyses to predict children's socio-emotional strengths and difficulties in the year before school as rated by teachers

Predictor variables	Teacher Rated SDQ	
	prosocial	difficulties
	Beta (r)	Beta (r)
Urban-rural location (recruitment)	.05 (-.05)	.17 (.15)
Child characteristics		
Gender (boys = 1; girls = 2)	.07 (.18)	-.01 (-.06)
Temperament	.06 (-.05)	-.09 (-.01)

Age in year before school entry	-.08	(-.06)	-.11	(-.07)
Family characteristics				
Mother's level of education	.00	(.03)	-.02	(-.12)
Family income (current)	.12	(.08)	-.13	(-.18)
Number of children in household	-.05	(-.07)	-.00	(.01)
Index of social support	-.03	(-.03)	-.05	(.06)
Parent-child relationship quality	.14*	(.15)	.03	(.06)
Maternal depression	.11	(.01)	-.01	(.03)
Child Care History				
Age of entry to child care	-.01	(-.02)	.05	(.05)
Number of care arrangements	-.11	(-.01)	.00	(-.03)
Number of changes to carer/centre	-.02	(.01)	.12*	(.10)
Carer-child relationship quality	.10	(.31)	-.16	(-.26)
Quality of care (ITERS/ECERS)	-.16*	(-.14)	.03	(-.02)
Weekly hours of formal care	-.09	(-.01)	.08	(.12)
Weekly hours of informal care	.17*	(.11)	.06	(-.02)
Children's Early Development				
Positive social skills (Parent rating)	.06	(.17)	-.12	(-.09)
Negative social skills (Parent rating)	.05	(-.13)	-.03	(.10)
Positive social skills (Carer rating)	.08	(.28)	.10	(-.08)
Negative social skills (Carer rating)	-.21*	(-.30)	.23	(.30)
Behaviour problems (Parent rating)	-.12	(-.23)	.13	(.14)
Behaviour problems (Carer rating)	.01	(-.20)	-.06	(.18)
Communication ability (Vineland)	.09	(.19)	-.03	(-.10)
Receptive vocabulary (PPVT)	-.05	(.07)	-.07	(-.09)
Early numeracy (WJ Applied Problems)	.10	(.18)	.10	(-.03)
Preschool/Child Care before School				
Quality of care (ECERS)	.01	(-.02)	-.15	(-.09)
Weekly hours of formal care	.11	(.08)	-.02	(.08)
Weekly hours of informal care	-.07	(-.00)	-.05	(-.04)
Number of care arrangements	-.07	(-.07)	.04	(.03)
Total Variance explained R^2	.302		.252	

Note: * $p \leq .05$, ** $p \leq .01$

As with the previous developmental outcomes, the full set of predictors was then reduced to identify the best set of predictors. Three variables were retained for teacher-rated prosocial behaviour. These were:

- Quality of the mother child relationship (β = .16, p < .05, partial r^2 = .029)

- Early positive social skills in child care – teacher-rated (β = .20, p < .001, partial r^2 = .041)

- Early negative social skills in child care – teacher-rated (β = -.25, p < .001, partial r^2 = .062)

> **Prosocial behaviour in the year before school (teacher ratings).** Children whom teachers rated highly for prosocial behaviour in the year before school were likely to have a close relationship with their mother and have shown more positive social skills and fewer negative social behaviours in their previous child care experience.

Only two variables were retained for teacher-rated socio-emotional difficulties:

- Early negative social skills in child care – teacher-rated ($\beta = .30$, $p < .001$, partial $r^2 = .092$)

- Number of changes of child care centre or carer in the early years ($\beta = .11$, $p < .05$, partial $r^2 = .013$)

> **Socio-emotional difficulties in the year before school (teacher ratings).** In the year before school entry, teachers' ratings of children's socio-emotional difficulties were influenced primarily by the social skills children brought with them. However, poorer outcomes were noted for children who had experienced a pattern of more changeable child care in the early years.

Adjustment in the year before school was also measured by teachers' ratings of their relationship with the children. Results for regression analyses to predict relationship conflict and closeness are presented in Table 6.4. The full set of predictors accounted for 34.6% of the variance in ratings of student-teacher conflict and 21.6% of the variance in student-teacher closeness.

Table 6.4 Regression analyses to predict student-teacher relationship conflict and closeness in the year before school as rated by teachers

Predictor Variables	Child Adjustment			
	Conflict		Closeness	
	Beta	(*r*)	Beta	(*r*)
Urban-rural location (recruitment)	-.14	(-.03)	-.01	(-.08)
Child Characteristics				
Gender (boys = 1; girls = 2)	.01	(-.08)	.00	(.04)
Temperament	-.12	(.00)	-.14	(-.17)
Age in year before school entry	.11	(.02)	-.02	(-.02)
Family Characteristics				
Mother's level of education	-.07	(-.10)	-.05	(.01)
Family income (current)	-.12	(-.11)	.09	(.05)
Number of children in household	-.03	(-.05)	-.11	(-.17)
Index of social support	-.06	(.05)	-.03	(-.04)
Parent-child relationship quality	.05	(.01)	-.07	(-.01)
Maternal depression	.04	(.07)	.12	(.06)
Child Care History				
Age of entry to child care	-.03	(.01)	.08	(.06)
Number of care arrangements	-.10	(-.13)	-.01	(-.01)
Number of changes to carer/centre	.03	(.01)	-.08	(-.07)

Carer-child relationship quality	-.32** (-.43)	.19* (.17)
Quality of care (ITERS/ECERS)	.07 (-.03)	-.08 (-.11)
Weekly hours of formal care	.09 (.12)	.10 (.15)
Weekly hours of informal care	.05 (-.11)	.10 (.08)
Early Development		
Positive social skills (Parent rating)	-.09 (-.07)	.12 (.18)
Negative social skills (Parent rating)	.10 (.18)	-.00 (-.09)
Positive social skills (Carer rating)	.09 (-.14)	.02 (.17)
Negative social skills (Carer rating)	.28** (-.44)	-.05 (-.06)
Behaviour problems (Parent rating)	.13 (.18)	.00 (-.11)
Behaviour problems (Carer rating)	-.15 (.21)	.12 (.02)
Communication ability (Vineland)	.09 (-.04)	-.09 (-.00)
Receptive vocabulary (PPVT)	.04 (-.07)	.07 (.05)
Early numeracy (WJ Applied Problems)	-.09 (-.12)	.03 (.04)
Preschool/Child Care in Year before School		
Quality of care (ECERS)	-.08 (-.03)	.01 (-.00)
Weekly hours of formal care	-.10 (.03)	.08 (.13)
Weekly hours of informal care	-.08 (-.09)	-.05 (-.04)
Number of care arrangements	.09 (-.04)	-.10 (-.09)
Total Variance explained R^2	.346	.216

Note: * $p \leq .05$, ** $p \leq .01$

The next stage of the analyses reduced the number of variables to generate the best set of predictors for each scale.

Retained variables for conflict with teachers in the year before school were:

- Lower family income (β = -.13, $p < .05$, partial r^2 = .020)

- Early development of negative social skills – teacher-rated (β = .28, $p < .01$, partial r^2 = .057)

- Poorer relationship quality with carers in child care prior to the year before school (β = -.25, $p < .001$, partial r^2 = .047)

Teacher-child relationships in the year before school (conflict). More conflicted student-teacher relationships were reported by teachers when children were from lower income families and had shown early indications of poorer social skills and poorer relationships with carers in previous years of child care.

Retained variables for closeness with teachers in the year before school were:

- Child temperament (β = .28, $p < .05$, partial r^2 = .026)

- Number of children in the household (β = -.18, $p < .01$, partial r^2 = .033)

- Relationship quality with carers in child care in earlier years (β = .17, $p < .05$, partial r^2 = .031)

> **Teacher-child relationships in the year before school (closeness).** Teachers reported closer relationships with children who had an easy rather than a difficult temperament and children who had fewer siblings. Close relationships were also more likely when children had a history of more positive relationships with their carers in previous years of child care.

6.4 Predictors of Child Adjustment and Development in Kindergarten

Achievement

Results for children's assessed abilities in numeracy and literacy are presented in Table 6.5, using an average score for literacy from scores for the Letter-Word Identification and Spelling scales of the Woodcock-Johnson Psycho-Educational Battery. Predictor variables included the 30 variables used to predict outcomes in the Year before school plus an additional eight variables related to children's current use of child care, family support for learning, and the classroom environment.

For Applied Problems scores, the full set of predictors explained 33.4% of the variance. For Literacy scores, a similar amount of the variance was explained (32.5%) in the first step of the analysis.

Table 6.5 Regression analyses to predict children's achievement in early literacy and numeracy and approach to learning in Kindergarten

Predictor Variables	Child Assessment		Teacher-rating
	Applied problems	Literacy	Approach to Learning
	Beta (*r*)	Beta (*r*)	Beta (*r*)
Urban-rural location (recruitment)	.06 (-.08)	-.09 (-.18)	-.05 (-.07)
Child characteristics			
Gender (boys = 1; girls = 2)	-.10 (.00)	-.01 (.09)	-.04 (.04)
Temperament	-.06 (-.03)	-.05 (-.03)	-.03 (-.03)
Age in Kindergarten	-.04 (.11)	.01 (.09)	-.09 (.03)
Family characteristics			
Mother's level of education	.11 (.17)	.09 (.15)	.00 (.14)
Family income	.09 (.03)	.16 (.14)	.17 (.16)
Number of children in household	-.07 (-.06)	-.16* (-.15)	-.11* (-.03)
Index of social support	-.10 (-.08)	-.15 (-.14)	-.24** (-.17)
Parent-child relationship quality	-.02 (.08)	.03 (.10)	-.11 (-.01)
Maternal depression	.08 (-.09)	.00 (-.18)	.13 (-.09)
Child Care History			
Age of entry to child care	.04 (.06)	.06 (.08)	.01 (.06)
Number of care arrangements	-.11 (.02)	-.09 (.00)	.14** (.15)
Number of changes to carer/centre	.01 (.04)	.01 (.01)	.13* (.07)
Carer-child relationship quality	-.02 (.21)	-.02 (.15)	.21* (.27)
Quality of care (ITERS/ECERS)	.01 (.07)	-.08 (.07)	.05 (.15)
Weekly hours of formal care	.06 (-.02)	.06 (.01)	-.09 (-.18)

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Weekly hours of informal care	.11 (.09)	.09 (.09)	-.10 (.09)
Early Development			
Positive social skills (Parent rating)	-.11 (-.04)	-.08 (-.01)	-.13 (-.03)
Negative social skills (Parent rating)	-.07 (-.15)	.03 (-.12)	-.08 (-.16)
Positive social skills (Carer rating)	.15 (.16)	.04 (.11)	-.02 (.08)
Negative social skills (Carer rating)	-.16 (-.23)	-.23** (-.20)	-.03 (-.24)
Behaviour problems (Parent rating)	.20 (-.03)	.13 (-.04)	-.01 (-.14)
Behaviour problems (Carer rating)	.04 (-.10)	.14 (-.00)	-.01 (-.16)
Communication ability (Vineland)	.09 (.16)	.12 (.21)	.06 (.14)
Receptive vocabulary (PPVT)	.04 (.27)	. 01 (.23)	-.05 (.23)
Early numeracy (WJ Applied Problems)	.42** (.38)	.33** (.34)	.36** (.28)
Preschool/Child Care before School Entry			
Quality of care (ECERS)	-.04 (.01)	-.00 (-.02)	-.03 (.01)
Weekly hours of formal care	-.09 (-.05)	-.03 (-.03)	-.03 (-.12)
Weekly hours of informal care	-.14* (-.06)	-.01 (.03)	.05 (.08)
Number of care arrangements	.18* (-.03)	.08 (-.06)	.06 (.05)
Kindergarten Year – OOSH Care			
Weekly hours of formal care	-.02 (.05)	-.13* (.03)	-.11 (-.08)
Weekly hours of informal care	-.07 (-.06)	-.13* (-.10)	-.06 (-.00)
Family Support for Learning			
Transition to school activities	.12 (.02)	-.05 (-.10)	-.02 (-.05)
Reading to child	-.01 (.00)	-.01 (.04)	.03 (.06)
Shared activities	-.18** (-.11)	-.09 (-.08)	-.12* (-.09)
Classroom Environment			
Management	-.15 (-.05)	-.05 (-.02)	.13 (.09)
Social climate	-.03 (.03)	.01 (.06)	-.09 (.07)
Instruction	.14* (.04)	.07 (.07)	.05 (.06)
Total Variance explained R^2	.334	.325	351

Note: * $p \le .05$, ** $p \le .01$

The full set of predictors was then reduced in a series of stepwise analyses (following the procedures described in Section 6.2) to identify the best set of predictors for each of the achievement outcomes.

The process of variable reduction retained only two variables for prediction of Applied Problems scores in Kindergarten:

- Early numeracy skills ($\beta = .36$, $p < .001$, partial $r^2 = .133$)

- Negative social skills in the early years – teacher-rated ($\beta = -.18$, $p < .01$, partial $r^2 = .038$).

Results were similar to those noted for Applied Problem scores in the year before school although child age was no longer a significant predictor of scores for Applied Problems in Kindergarten.

> **Numeracy in Kindergarten**. Children who showed fewer social problems and a better aptitude for numeracy in their early development prior to the year before school were more likely to achieve higher numeracy scores in Kindergarten.

Four variables were retained for prediction of Literacy scores:

- Number of children in the household (β = -.14, $p < .05$, partial r^2 = .022)

- Level of social support (β = -.13, $p < .05$, partial r^2 = .021) Note: high scores on this scale indicate less social support

- Negative social skills – teacher-rated (β = -.16, $p < .01$, partial r^2 = .031)

- Early numeracy (β = .31, $p < .001$, partial r^2 = .107)

Three of these variables had also been identified in the best set of predictors in the year before school but the child care variables identified as predictors of literacy outcomes in the year before school were no longer significant.

> **Literacy in Kindergarten.** Children who had fewer siblings and showed fewer negative social behaviours and a better aptitude for numeracy in their early development were more likely to achieve higher literacy scores in Kindergarten. Family social support was also identified as a predictor of literacy outcomes in Kindergarten.

Adjustment

Teachers' ratings of children's academic adjustment in Kindergarten

Academic adjustment in Kindergarten was described by a measure of children's approach to learning. Results are reported the third column of Table 6.5 (above). The full set of predictors explained 35.1% of the variance.

After reduction to identify the best set of predictors, four variables were retained:

- Current family income (β = .18, $p < .05$ partial r^2 = .033)

- Social support from family and friends (β = -.13, $p < .05$, partial r^2 = .019) Note: high scores on scale indicate lower levels of support

- Weekly hours of early child care in formal care settings such as long day care or family day care (β = -.18, $p < .001$, partial r^2 = .035)

- Early numeracy abilities (β = .28, $p < .001$, partial r^2 = .086)

> **Teachers' ratings of children's academic adjustment in Kindergarten.** Children who were rated by their teachers as more successful in their adjustment to the learning demands of the classroom, that is, were more task- oriented, less dependent and distractible and more involved and active participants in learning activities, were likely to have shown an early aptitude for solving problems in numeracy. Family economic advantage and social support from friends and family were important predictors of academic adjustment. However, children who had received longer hours of formal child care in the early years were found to be less well able to meet the academic demands of their first year of school.

Social and emotional adjustment in Kindergarten

Results for nine measures of children's social and emotional adjustment are presented in the following sections. Parents and teachers provided ratings on children's socio-emotional strengths and difficulties (Table 6.6 and 6.7). Teachers provided ratings of student-teacher relationship closeness and conflict (Table 6.8). Children's self-reports also provided ratings of their feelings about school, their teachers and their classmates (Table 6.9).

Parent-reported socio-emotional strengths and difficulties

Results presented in the Table 6.6 showed that the full set of 38 predictors accounted for 23.7% of the variance in parents' ratings of prosocial behaviour and 42.5% of the variance in socio-emotional difficulties.

Table 6.6 Regression analyses to predict children's socio-emotional strengths and difficulties in Kindergarten as rated by parents

Predictor variables	Parent Rated SDQ	
	Prosocial	Difficulties
	Beta (*r*)	Beta (*r*)
Urban-rural location (recruitment)	-.12 (-.09)	.00 (.08)
Child characteristics		
Gender (boys = 1; girls = 2)	.10 (.19)	-.09 (-.16)
Temperament	.02 (-.09)	.03 (.25)
Age in Kindergarten	.04 (-.01)	.00 (-.03)
Family characteristics		
Mother's level of education	-.04 (-.01)	-.09 (-.16)
Family income	.00 (.05)	-.03 (-.03)
Number of children in household	.06 (-.02)	-.05 (-.05)
Index of social support	-.03 (-.05)	.10 (.27)
Parent-child relationship quality	.05 (.11)	-.07 (-.22)
Maternal depression	.06 (.01)	.04 (.22)
Child Care History		
Age of entry to child care	-.10 (.01)	.07 (.03)
Number of care arrangements	-.25** (-.14)	.02 (-.04)
Number of changes to carer/centre	.02 (-.00)	.04 (.04)
Carer-child relationship quality	-.08 (.07)	-.02 (-.22)

Quality of care (ITERS/ECERS)	-.06 (-.02)	.13* (.03)
Weekly hours of formal care	.03 (.07)	-.07 (-.03)
Weekly hours of informal care	.13 (.02)	-.08 (-.02)
Early Development		
Positive social skills (Parent rating)	.16** (.19)	-.00 (-.19)
Negative social skills (Parent rating)	-.09 (-.19)	.18** (.37)
Positive social skills (Carer rating)	-.09 (.08)	.03 (-.18)
Negative social skills (Carer rating)	-.16 (-.11)	.05 (.21)
Behaviour problems (Parent rating)	-.16 (-.22)	.34** (.47)
Behaviour problems (Carer rating)	.03 (-.05)	.07 (.19)
Communication ability (Vineland)	-.03 (.09)	.00 (-.17)
Receptive vocabulary (PPVT)	.12 (.13)	.03 (-.13)
Early numeracy (WJ Applied Problems)	.06 (.15)	-.12 (-.22)
Preschool/Child Care before School		
Quality of care (ECERS)	-.13 (-.11)	.07 (.05)
Weekly hours of formal care	.12 (.08)	.09 (.02)
Weekly hours of informal care	.07 (.05)	.12* (.10)
Number of care arrangements	.05 (-.02)	-.11 (.01)
Kindergarten Year – OOSH Care		
Weekly hours of formal care	-.04 (.03)	.03 (-.04)
Weekly hours of informal care	.03 (.04)	.17** (.14)
Family Support for Learning		
Transition to school activities	.05 (.08)	-.09 (-.09)
Reading to child	-.05 (-.00)	-.07 (-.08)
Shared activities	.10 (.07)	.00 (-.03)
Classroom Environment		
Management	.14 (.09)	.03 (.05)
Social climate	-.01 (.07)	.01 (.01)
Instruction	-.01 (.05)	-.02 (-.00)
Total Variance explained R^2	.237	.425

Note: * $p \leq .05$, ** $p \leq .01$

The full set of variables was subjected to the process of reduction, described in section 6.2 to identify the best set of predictors for the outcome variables.

Six variables were retained for prediction of prosocial behaviour:

- Child gender ($\beta = .15$, $p < .01$, partial $r^2 = .025$)

- Informal hours of care ($\beta = .16$, $p < .05$, partial $r^2 = .019$)

- Number of weekly care arrangements ($\beta = -.24$, $p < .001$, partial $r^2 = .040$) in children's experience of early care

- Quality of preschool/child care in the year before starting school ($\beta = -.13$, $p < .05$, partial $r^2 = .018$)

- Early parent-reported behaviour problems (β = -.18, $p < .01$, partial r^2 = .032)

- Carer-reported positive social skills (β = .13, $p < .01$, partial r^2 = .019).

> **Parent-reported prosocial behaviour in Kindergarten.** Children who were seen by their parents as more empathic and prosocial in their interactions with other children were more likely to be girls and to have shown fewer early behaviour problems with their parents and more positive social interaction with other children in child care. In relation to child care experience, children who spent more time in informal care settings and had fewer care arrangements per week in their early years were more likely to be seen by parents as prosocial with their peers.

Retained variables for parent-reported difficulties were:

- Family social support (β = .12, $p < .05$, partial r^2 = .020) Note: high scores on scale indicate less social support

- Carer-child relationship quality in early child care (β = -.13, $p < .01$, partial r^2 = .022)

- Early behaviour problems (β = .34, $p < .001$, partial r^2 = .124)

- Early negative social skills – as rated by teachers (βs = .22, $p < .001$, partial r^2 = .060)

- Hours of outside school hours care in informal care settings (β = .15, $p < .01$, partial r^2 = .030)

> **Parent-reported socio-emotional difficulties in Kindergarten.** Children who were rated by their parents as having more socio-emotional difficulties in Kindergarten were less likely to have had a close relationship with their carers and displayed negative social behaviour in their early child care settings and more likely to have shown behavioural problems and negative social behaviour at home earlier in their development. Difficulties were also higher for the children who spent longer hours in outside school hours child care that was informal.

Teacher-reported socio-emotional strengths and difficulties

Results presented in Table 6.7 showed that the full set of 38 predictors accounted for 30.0% of the variance in parents' ratings of prosocial behaviour and 41.4% of the variance in socio-emotional difficulties.

Table 6.7 Regression analyses to predict children's socio-emotional strengths and difficulties in Kindergarten as rated by teachers

Predictor variables	Teacher Rated SDQ	
	Prosocial	Difficulties
	Beta (*r*)	Beta (*r*)
Urban-rural location (recruitment)	.02 (.02)	.01 (.03)
Child characteristics		

Gender (boys = 1; girls = 2)	.07 (.18)	.04 (-.04)
Temperament	-.09 (-.09)	.08 (.10)
Age in Kindergarten	-.08 (-.02)	.09 (-.03)
Family characteristics		
Mother's level of education	-.02 (.05)	-.03 (-.16)
Family income	.12 (.13)	-.21* (-.19)
Number of children in household	-.03 (.03)	.11 (.01)
Index of social support	-.19* (-.14)	.19* (.15)
Parent-child relationship quality	-.01 (-.02)	.00 (-.02)
Maternal depression	.16* (-.01)	-.16* (.06)
Child Care History		
Age of entry to child care	.05 (.08)	.03 (-.03)
Number of care arrangements	-.07 (.03)	-.16* (-.18)
Number of changes to carer/centre	.06 (-.10)	-.04 (.01)
Carer-child relationship quality	.17 (.36)	-.21* (-.40)
Quality of care (ITERS/ECERS)	-.02 (.03)	-.05 (-.11)
Weekly hours of formal care	-.17* (-.19)	.15* (.18)
Weekly hours of informal care	.09 (.11)	.02 (-.16)
Early Development		
Positive social skills (Parent rating)	-.07 (.03)	.10 (-.04)
Negative social skills (Parent rating)	.05 (-.14)	.05 (.19)
Positive social skills (Carer rating)	-.03 (.18)	-.14* (-.26)
Negative social skills (Carer rating)	-.27** (-.38)	.12 (.37)
Behaviour problems (Parent rating)	-.10 (-.19)	.10 (.17)
Behaviour problems (Carer rating)	.00 (-.22)	.05 (.25)
Communication ability (Vineland)	.12 (.14)	-.00 (-.07)
Receptive vocabulary (PPVT)	-.07 (.10)	.16 (-.10)
Early numeracy (WJ Applied Problems)	.05 (.07)	-.23* (-.17)
Preschool/Child Care before School		
Quality of care (ECERS)	-.11 (-.06)	.07 (.02)
Weekly hours of formal care	.15 (.03)	-.09 (.05)
Weekly hours of informal care	.03 (.07)	-.03 (-.05)
Number of care arrangements	-.01 (.05)	.02 (-.02)
Kindergarten Year – OOSH Care		
Weekly hours of formal care	-.06 (-.07)	.17** (.13)
Weekly hours of informal care	-.02 (.05)	.10 (.01)
Family Support for Learning		
Transition to school activities	.06 (.11)	.02 (.00)
Reading to child	-.00 (.03)	-.03 (-.04)
Shared activities	-.00 (-.00)	.08 (.05)
Classroom Environment		
Management	.19* (.17)	-.17 (-.17)
Social climate	-.03 (.14)	.02 (-.14)
Instruction	-.00 (.05)	-.01 (-.06)
Total Variance explained R^2	.360	.414

Note: * $p \leq .05$, ** $p \leq .01$

After a process of reduction to determine the best sets of predictors for the teacher-rated outcome variables, the sets of retained variables were similar to those found in parent ratings of the same behaviour.

Six variables were retained as significant predictors of prosocial behaviour:

- Child gender (β = .12, $p < .05$, partial r^2 = .017)

- Fewer negative social skills in their early child care (β = -.22, $p < .01$, partial r^2 = .034)

- Fewer hours of formal child care in their child care history before age 4 (β = -.22, $p < .01$, partial r^2 = .046)

- More positive relationships with carers in early care (β = .19, $p < .01$, partial r^2 = .028)

- Longer hours of formal care in the year before school (β = .16, $p < .05$, partial r^2 = .026)

- Kindergarten classrooms that were more effectively managed (β = .18, $p < .01$, partial r^2 = .040)

Teacher-reported prosocial behaviour. Children who were rated by their teachers as more prosocial in Kindergarten were more likely to be girls, to have shown fewer negative social skills and a close relationship with their carers in their early child care settings. They were also more likely to have attended fewer hours of formal child care in their early years and longer hours of formal care/education in the year before school, and to currently attend more effectively managed classrooms in their first year at school.

Four of these variables were also in the retained set of significant predictors for socio-emotional difficulties following reduction. The significant predictors in the final set were:

- Fewer positive social skills in early child care teacher-rated (β = -.12 $p < .05$, partial r^2 = .014)

- More hours of formal child care in their early childcare history (β = .14, $p < .01$, partial r^2 = .022)

- Less positive relationships with carers in early care (β = -.31, $p < .001$, partial r^2 = .096)

- Kindergarten classrooms that were less effectively managed (β = -.14, $p < .05$, partial r^2 = .024)

- Families with lower income (β = -.20, $p < .01$, partial r^2 = .048)

- Lower numeracy scores at age 3 to 4 years (β = -.12, $p < .05$, partial r^2 = .018)

- Longer hours of outside school hours child care in formal settings (β = .14, $p < .05$, partial $r^2 = .021$).

> **Teacher-reported socio-emotional difficulties**. Children who were rated by their teachers as having more socio-emotional difficulties were likely to have had an early child care history characterised by less positive social skills, less positive relationships with carers and longer hours of formal care in their early years, in addition to longer current hours of formal outside school hours care. They were also more likely to come from families with lower incomes, to have achieved lower numeracy scores when aged 3 to 4 years and to be in Kindergarten classrooms that were less effectively managed.

Teacher-reported student-teacher relationship

Results for student-teacher relationship quality are presented in Table 6.8. The variance explained by the full set of predictor variables was 42.7% for conflict and 23.4% for closeness in the student-teacher relationship.

Table 6.8 Regression analyses to predict student-teacher relationship conflict and closeness in Kindergarten as rated by teachers

Predictor Variables	Conflict		Closeness	
	Beta	(*r*)	Beta	(*r*)
Urban-rural location (recruitment)	.07	(.14)	.03	(.07)
Child characteristics				
Gender (boys = 1; girls = 2)	.02	(-.07)	.09	(.12)
Temperament	-.06	(-.03)	-.09	(-.06)
Age in Kindergarten	.15*	(.07)	-.09	(-.07)
Family characteristics				
Mother's level of education	-.03	(-.14)	-.05	(-.01)
Family income	-.20**	(-.15)	.17*	(.18)
Number of children in household	.12*	(.04)	-.05	(.00)
Index of social support	.12	(-.02)	-.12	(-.14)
Parent-child relationship quality	-.15	(-.07)	-.15	(-.15)
Maternal depression	-.25**	(-.05)	.07	(.02)
Child Care History				
Age of entry to child care	.02	(.03)	.02	(.07)
Number of care arrangements	-.11	(-.11)	-.02	(.01)
Number of changes to carer/centre	-.02	(-.01)	.03	(-.03)
Carer-child relationship quality	-.17*	(-.38)	.05	(-.05)
Quality of care (ITERS/ECERS)	.12	(.01)	-.00	(.06)
Weekly hours of formal care	.16*	(.18)	-.14	(-.18)
Weekly hours of informal care	-.02	(-.15)	.02	(-.04)
Early Development				
Positive social skills (Parent rating)	.16*	(.09)	.02	(.08)
Negative social skills (Parent rating)	-.04	(.13)	.11	(.01)
Positive social skills (Carer rating)	-.01	(-.13)	-.02	(.07)
Negative social skills (Carer rating)	.36**	(.44)	-.02	(-.07)
Behaviour problems (Parent rating)	.07	(.10)	-.15	(-.15)

Behaviour problems (Carer rating)	-.07	(.21)	-.01 (-.09)
Communication ability (Vineland)	-.10	(-.09)	.01 (.07)
Receptive vocabulary (PPVT)	.11	(-.07)	.11 (.11)
Early numeracy (WJ Applied Problems)	-.15	(-.14)	-.08 (-.06)
Preschool/Child Care in the Year before School			
Quality of care (ECERS)	.05	(.06)	.07 (.12)
Weekly hours of formal care	-.04	(.08)	-.01 (-.06)
Weekly hours of informal care	.01	(-.04)	-.01 (.06)
Number of care arrangements	.10	(.09)	-.04 (.06)
Kindergarten Year – OOSH Care			
Weekly hours of formal care	.14*	(.04)	-.00 (-.06)
Weekly hours of informal care	.08	(-.02)	.05 (.06)
Family Support for Learning			
Transition to school activities	.01	(.00)	.01 (.04)
Reading to child	.08	(.04)	.09 (.06)
Shared activities	.07	(.09)	-.01 (-.01)
Classroom Environment			
Management	-.10	(.06)	.14 (.12)
Social climate	.08	(-.09)	-.03 (-.01)
Instruction	-.09	(-.10)	-.13 (-.06)
Total Variance explained R^2	.427		.234

Note: * $p \leq .05$, ** $p \leq .01$,

Following the process of variable reduction to determine the best set of predictors, relationship conflict was found to be predicted by the following set of variables:

- Family income (β = -.13, $p < .05$, partial r^2 = .023)

- Maternal depression (β = -.13, $p < .05$, partial r^2 = .023)

- Hours of early child care in formal settings (β = .15, $p < .05$, partial r^2 = .028)

- Hours of early child care in informal settings (β = -.11, $p < .05$, partial r^2 = .016)

- Relationships with carers in early child care (β = -.18, $p < .01$, partial r^2 = .027)

- Early negative social skills in care (β = .29, $p < .001$, partial r^2 = .061)

- Number of weekly care arrangements in the year before school (β = .11, $p < .05$, partial r^2 = .014)

> **Teacher-reported teacher-child relationship in Kindergarten (conflict)** Teachers reported more conflict in their relationships with children who were from low income families or in which the mother had suffered from depression. A conflicted relationship was also more likely when the child's early child care experience included more hours of formal care and fewer hours of informal care and was characterized by poorer teacher-child relationships and more negative social behaviour. More conflicted teacher-child relationships in Kindergarten were also noted in children who had attended multiple care settings in the year before school.

Student-teacher closeness in the relationship was predicted by the following variables retained following variable reduction to identify the best set of predictors:

- Family income ($\beta = .19$, $p < .001$, partial $r^2 = .039$)

- Mother child relationship quality ($\beta = -.18$, $p < .001$, partial $r^2 = .032$);

- Hours of early child care in formal settings ($\beta = -.17$, $p < .001$, partial $r^2 = .032$)

- Early signs of behaviour problems as rated by parents ($\beta = -.19$, $p < .001$, partial $r^2 = .036$)

> **Teacher-reported teacher-child relationship in Kindergarten (closeness)** Children who were reported by Kindergarten teachers to have formed closer relationships with them tended to be from more financially advantaged families. In their early development and in early child care, they were more likely to have had a less positive relationship with their mothers and to have shown fewer behaviour problems at home. Children with closer relationships with their Kindergarten teachers had also spent fewer hours in formal child care during their early years.

Child-reported feelings about school, the teacher and peers

Results are presented in Table 6.9 for the three child-reported outcomes of adjustment. These outcomes were less well explained by the set of 38 predictor variables than were teacher and parent-reported outcomes, with R^2 figures of .185, .219, and .250 for school liking, teacher liking, and peer liking, respectively.

Table 6.9 Regression analyses to predict children's feelings about school, their teachers and peers

Predictor variables	School liking		Teacher liking		Peer liking	
	Beta	(*r*)	Beta	(*r*)	Beta	(*r*)
Urban-rural location (recruitment)	-.18*	(-.11)	-.15*	(-.06)	-.10	(-.11)
Child characteristics						
Gender (boys = 1; girls = 2)	.11	(.11)	.18**	(.19)	.06	(.07)
Temperament	.06	(-.00)	-.04	(.00)	.15	(.10)
Age in Kindergarten	.04	(.02)	-.00	(-.02)	-.05	(-.08)
Family characteristics						
Mother's level of education	.05	(.06)	.02	(.03)	.11	(.16)

Family income	-.09 (-.00)	.01 (.06)	-.06 (.03)
Number of children in household	-.02 (-.02)	.06 (.09)	-.04 (.01)
Index of social support	-.03 (-.05)	.08 (.02)	-.10 (-.06)
Parent-child relationship quality	-.04 (.00)	-.10 (-.11)	-.07 (-.08)
Maternal depression	.05 (.03)	-.02 (.00)	-.08 (.02)
Child Care History			
Age of entry to child care	.02 (.06)	-.10 (.03)	-.04 (-.05)
Number of care arrangements	-.04 (-.05)	-.07 (.00)	.05 (-.01)
Number of changes to carer/centre	-.10 (-.11)	-.04 (-.08)	-.07 (-.08)
Carer-child relationship quality	.19* (.16)	.10 (.14)	.25** (.22)
Quality of care (ITERS/ECERS)	.07 (.10)	.10 (.13)	.07 (.10)
Weekly hours of formal care	.00 (-.04)	.00 (-.09)	.05 (-.01)
Weekly hours of informal care	-.04 (-.04)	-.03 (-.02)	-.17* (-.08)
Early Development			
Positive social skills (Parent rating)	.07 (.07)	.02 (-.02)	-.02 (-.04)
Negative social skills (Parent rating)	.02 (-.09)	.12* (.01)	-.01 (-.07)
Positive social skills (Carer rating)	.00 (.10)	-.04 (.04)	-.15 (-.03)
Negative social skills (Carer rating)	-.07 (-.15)	-.17 (-.19)	-.14 (-.24)
Behaviour problems (Parent rating)	-.12 (-.11)	-.12 (-.07)	-.15 (-.07)
Behaviour problems (Carer rating)	.12 (-.05)	.09 (-.06)	.08 (-.10)
Communication ability (Vineland)	-.05 (.07)	-.01 (.05)	.07 (.06)
Receptive vocabulary (PPVT)	.03 (.09)	.00 (.05)	-.09 (.01)
Early numeracy (WJ Applied Problems)	-.05 (.07)	-.04 (-.02)	-.03 (.01)
Preschool/Child Care in the Year before School			
Quality of care (ECERS)	.01 (-.01)	.03 (.00)	-.02 (-.05)
Weekly hours of formal care	-.13 (-.11)	-.05 (-.06)	-.11 (-.08)
Weekly hours of informal care	-.01 (-.04)	-.10 (.04)	.08 (.04)
Number of care arrangements	.00 (-.07)	.15* (.10)	.02 (-.03)
Kindergarten Year – OOSH Care			
Weekly hours of formal care	.02 (-.02)	-.10 (-.13)	-.01 (-.03)
Weekly hours of informal care	.09 (.04)	-.01 (.10)	.01 (.01)
Family Support for Learning			
Transition to school activities	-.04 (-.01)	.02 (.07)	. 00 (.07)
Reading to child	.07 (.12)	.08 (.09)	-.10 (.06)
Shared activities	.15* (.15)	.02 (.01)	.07 (.04)
Classroom Environment			
Management	.11 (.09)	.09 (.18)	.13 (.17)
Social climate	-.07 (.05)	.08 (.18)	.00 (.16)
Instruction	-.01 (.07)	-.00 (.11)	.05 (.17)
Total Variance explained R^2	.185	.219	.250

Note: * $p \le .05$, ** $p \le .01$

A consistent pattern was apparent in the sets of variables that were retained for the three outcomes after the process of variable reduction. For school liking, retained variables were:

- Number of changes of carer or centre in early years (β = -.12, $p < .05$, partial r^2 = .016)

- Carer-child relationship quality in early child care experiences (β = .17, $p < .05$, partial r^2 = .031)

- Hours of formal care/preschool in year before school (β = -.11, $p < .05$, partial r^2 = .014).

- Shared family activities at home (β = .17, $p < .01$, partial r^2 = .030)

Child-reported liking of school

Children who said that they liked school were more likely to have had fewer changes in carers or care arrangements, spent fewer hours in formal care and experienced more positive relationships with carers in their early child care experiences. They were also more likely to have more shared family activities at home.

For teacher liking, the retained variables after the process of variable reduction were:

- Child gender (β = .16, $p < .01$, partial r^2 = .028)

- Number of children in the household (β = .11, $p < .05$, partial r^2 = .012)

- Negative social skills in early years – teacher-rated (β = -.16, $p < .01$, partial r^2 = .027)

- More care arrangements per week in the year before school (β = .13, $p < .05$, partial r^2 = .018)

- Quality of the classroom management environment (β = .20, $p < .001$, partial r^2 = .044)

Child-reported feelings about their teacher

Children who attended Kindergarten classrooms that were well managed were happier in their relationships with their teachers. They were more likely to be girls with more siblings at home. In terms of child care, they were likely to be children who had shown fewer negative behaviours in the early years and who had experienced more care arrangements in the year before starting school

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For peer liking, retained variables following variable reduction to find the best set of predictors were:

- Positive relationships with caregivers in early child care (β = .29, $p < .001$, partial r^2 = .070)

- Early positive social skills in child care as reported by carers (β = -.16, $p < .05$, partial r^2 = .023)

- Classrooms that were well-managed (β = .20, $p < .05$, partial r^2 = .041)

Child-reported feelings about peers

Children who attended Kindergarten classrooms that were well managed were happier in their relationships with peers. In their early child care experiences, they were more likely to have had positive relationships with their carers but to have shown fewer positive social skills with peers.

The following chapter will provide a summary and discussion of these findings.

CHAPTER 7 DISCUSSION AND CONCLUSIONS

The final chapter summarises and discusses the main findings of the study in relation to the research questions and presents conclusions about the part played by regulated child care in children's preparation for successful school transition and about the study itself.

7.1 Discussion of the Results of the Study

In the course of the this research project, with its repeated measurement of many factors related to the lives and the care and educational experiences of young children across New South Wales, we have been able to describe many of the features of families with young children who are sending their children to regulated child care, the child care arrangements they have made as well as the activities of children and families around the child's transition to school. This is a valuable contribution to knowledge about Australian children, child care and school transition when all too often we need to rely on such information from other countries.

Details of these findings are presented in Chapters 2 (for features of the families), 3 (child care) and 4 (transition to school and early school experience) but there are particular findings related to the research questions reproduced below that that we would like to highlight and discuss further.

Research Question 1

What is the experience of families and young children in relation to regulated child care?

This question involved three sub-questions that will be discussed in turn.

1.1 What kind of child care arrangements involving regulated care and what combinations of care do families make for their young children?

We found that use of child care changes with age but that the average child is more likely to attend care on a part-time than a full-time basis with two to three days of care being a common pattern. This was a similar finding to that from the more representative sample of children in the Longitudinal Study of Australian children (Harrison & Ungerer, 2005; Harrison et al., 2009 in press), although LSAC has not yet released results for the full range of child ages found in the present study.

An issue of great interest to us, particularly in the first three years for the study, was the use of multiple care arrangements (more than one child care arrangement a week) and the changeability of care (how many times in 12 months, the child care centre was changed or the carer was changed within a care setting). Our data show that in the early years, children are more likely to be in a single care setting than in multiple arrangements. While multiple arrangements were used by about a third of the sample, these were generally no more than two arrangements a week and likely to involve grandparents supplementing the formal care in the primary care setting (long day care, family day care and later, preschool).

Parents' reasons for making multiple care arrangements suggest a mix of convenience and concern for the child's best interests, suggesting that the decision is a

deliberate rather than a default one based on access issues. The nature of the sample needs to be kept in mind when generalizing this conclusion. These were families who had gained a child care place and who were able to afford formal care.

1.2 How satisfied are families with their children's child care arrangements?

As has been found in previous research on parent satisfaction with child care (Bowes et al., 2003), parents in the Child Care Choices study expressed a high level of satisfaction with the child care arrangements they had made for their child. This was consistently the case as we asked the parents about their satisfaction with each form of child care their child was attending during each year of data collection. The highest satisfaction was for care by grandparents and the lowest was for multiple care arrangements.

Our analysis of written comments from parents in the first year of the study (Bowes & Harrison, 2007) suggests that parents were not simply expressing satisfaction to justify their choices or to avoid noticing any shortcomings that might add to their guilt about placing their child in care. Their comments suggest that parents were observant and knowledgeable about what was happening in the child care settings and their own and their children's reactions to it and they had negative as well as positive reactions to aspects of care.

1.3 How changeable are young children's care arrangements?

Changing of care arrangements was not as frequent as we had expected based on research from the USA (NICHD, 2001) although some children in the study experienced up to six changes over a 12 month period. As other results of this study and other Australian research (Harrison & Ungerer, 2000, 2002; Love et al., 2003) show, more changes in care were associated with socio-emotional difficulties in the year before school.

Research Question 2

What is the nature of young children's child care experience?

This question involved two sub-questions that will be discussed in turn.

2.1 What is the level and range of quality provided in their child care centres and family day care homes?

Quality of centres and family day care homes was measured using an internationally recognised set of observation scales (ITERS, ECERS and FDCERS, see Chapters 2 and 3). In this sample, average quality ranged from good to above average with scores of around 5 on a 7-point scale with some variation reflected in standard deviations of 1 or less. This is similar to the ECERS values found in other Australian research (Harrison, Skouteris, Watson & Ungerer, 2006) and is higher than average quality rated on the same instruments in the USA and Israel and lower than in Sweden (Love et al., 2005). Preschools were rated as significantly higher in quality than long day care centres. In turn, both kinds of centre-based care had higher ratings of quality than family day care homes. This may reflect the different level and mix of early childhood qualifications of staff in these different kinds of child care.

2.2 What is the quality of the relationships children form with their child care providers?

The teacher-child relationship was based on a rating scale completed by teachers that gave two subscale measures: degree of conflict and degree of closeness. There was little variation by age of child in the conflict and closeness of the teacher-child relationships.

Research Question 3

What is the experience of families and children as children enter formal schooling?

This question involved three sub-questions that will be discussed in turn.

3.1 What kind of transition experiences do parents report as helpful in preparing their child for school?

Parents gave a great deal of information in this study on their child's transition to school. They rated most highly orientation programs and open days at the school as well as information packages in terms of their usefulness for school transition. These formal activities originating from the school emerged from parents' ratings of a comprehensive list of formal and informal transition activities that came from schools, prior to school settings or were introduced by the families themselves.

3.2 What is the level and range of family involvement in their children's learning at home and at school?

Once their child had started school parents were asked about their support of their child's learning, their involvement with the school and the care arrangements they had made for their child before and after school hours. In their first year at school about 30 percent of the children attended formal before and after school care and about half attended vacation care. Most families reported that they spent regular time reading to their child at home and, on average, they spent a moderate level of time in other shared activities at home like drawing or music. Two thirds of families reported that they helped their child with homework every day. Most of the parents' involvement with the school was informal (talking to teachers or other parents) with 42 percent reporting that they had attended a parent committee meeting during their child's first year at school and 20 percent helping with reading in the classroom on a weekly basis. These results suggest that the parents who have participated in the Child Care Choices study and shown a lot of thought and involvement in the child care their child has experienced, wish to continue their involvement in the next stage of their child's education.

3.3 What kinds of child care arrangements do families make for their school-age children?

When children were in their first year of school, the most common care arrangement involved care by the other parent (generally the father), followed by care provided by a grandparent or a care program based at the child's school. About half of the children in the study attended vacation care when they were in their Kindergarten year. It seems that the parents were still making considerable use of formal care options once their child had started school although there was some preference suggested for family members for daily care before or after school. Other analysis of

Child Care Choices data on use of grandparent care suggests that for families able to make such arrangements, grandparents remain involved in child care to the same extent through the prior to school years and into the early years of school (Bowes, 2008).

Research Question 4

What is the nature of young children's experience of school?

This question involved two sub-questions that will be discussed in turn.

4.1 How do children feel about school, their teachers, and their peers?

Child interviews during their first year at school revealed that most children liked being at school. However, a sizeable group of Kindergarten children said that they did not like school. These children have been the subject of more detailed analysis that suggests a troubled history in child care in the years prior to school (Stirling & Hutchesson, 2008). In terms of liking their teachers and their peers, children seemed to be generally positive with little variation in their responses to these questions.

4.2 What is the level and range of quality provided in their classroom learning environments?

Based on standardized observations made of Kindergarten classrooms attended by children in the study, classrooms were found to show a wide range of quality in terms of management, social climate and approaches to instruction.

Research Question 5

What factors explain how well are children doing in their development at school and in the year before entering school?

To avoid excessive repetition, the three sub-questions will be answered and discussed together. The sub-questions are:

5.1 What are the unique predictive effects of child and family characteristics, early child care experiences, early development, and current patterns of child care/preschool attendance on achievement and adjustment in the year prior to school entry?

5.2 What are the unique predictive effects of child and family characteristics, early child care experiences, early development, child care/preschool experience in the year before school, transition to school experiences, family support for learning at home and at school, and classroom quality on achievement and adjustment in the first year of school?

5.3 What are the child, family, early learning, and child care/preschool factors that combine to best predict children's achievement and adjustment in the year prior to school entry and the first year at school?

The central research questions of the study were around the prediction of children's achievement and adjustment in the year before and after their transition to school. The following section summarises and discusses the results of the regression

analyses presented in Chapter 6. Please note that the tables that summarise the results and the discussion focus on the final reduced predictive models. The full models are presented in Chapter 6 and give details of all variables related significantly to the outcome variables. This was felt to be too complex to reproduce and summarise in the Discussion and Conclusions chapter.

Results are presented first for children in the year before school and then for children in Kindergarten, their first year of school. The tables accompanying the verbal summaries show which of the predictor variables were found to be significant in the reduced regression model generated for each independent variable.

The tables also show significant predictors in terms of sets of variables: child factors, family factors, factors related to the child's child care history, factors related to measures of children's earlier development, factors related to current child care arrangements and for the children in Kindergarten: family support for learning and classroom environment. For each of the tables, child outcomes are listed down the left side and predictors are listed across the top.

Achievement in the Year before School

Numeracy and literacy were the two independent variables used to represent child's achievement in the year prior to school. The summary of the analysis is reproduced below.

Numeracy

- Children who were older, showed fewer social problems and had a better aptitude for numeracy in their early development were more likely to achieve higher numeracy scores in the year before school entry. Early aptitude in numeracy was the primary predictor.

Table 7.1. Predictors of achievement in the year before school

	Child	**Family**	**Child care history**	**Early development**	**Current child care (year before school)**
Numeracy	Older			Higher numeracy Fewer negative social skills[p]	
Literacy	Older	Fewer siblings	Fewer weekly care arrangements	More communication skills Higher numeracy Fewer negative social skills[t]	Fewer hours of formal care

Note: For variables that were rated by both parents and teachers, p = reported by parents, t = reported by teachers/carers

It can be seen from Table 7.1 that the predictors for numeracy in the year before school involved a child factor (age) and factors from children's earlier development (numeracy skills and fewer negative social skills). The full model explained a large percentage of the variance (41.9%) and the score on this numeracy test in previous years was the most significant predictor. After accounting for the effects of child age, and early numeracy and social skills, no family factors or characteristics of current child care arrangements including observed quality of care were found to contribute to the explained variance.

Literacy

- Children who were older, had fewer siblings, and showed fewer social problems, more communication skills and a better aptitude for numeracy in their early development were more likely to achieve higher literacy scores in the year before school entry. Children who were attending longer hours of child care, preschool, or family day care and had attended a larger number of different care arrangements in their early years were less likely to score highly in literacy.

Table 7.1 shows a wider range of factors working together to predict children's literacy level in the year prior to school than was apparent in the prediction of numeracy scores. Child, family, child care history, prior development and current child care factors combined to account for 47% of the variance.

Longer hours in care and multiple care arrangements have been found to be detrimental to children's development in previous overseas research (Belsky, 2001; NICHD, 2001; Sylva et al., 2003) as well as recent Australian research (Harrison et al., in press). It is interesting that current hours in formal care were linked significantly to poorer literacy scores in the year before school, rather than hours in informal care or combined hours in formal and informal care. It may be that more hours in formal care mean less time for the one-to-one interaction that provides a rich opportunity for learning language skills that are linked to literacy.

It is interesting to note that observed quality of child care did not emerge as a significant predictor of achievement in the year before school. This may be due to the general high quality of care observed in the centres in this study.

Adjustment in the Year before School

Children's adjustment in the year before school has been reported in relation to three independent variables: prosocial behaviour, socio-emotional difficulties, the teacher-child relationship in the main care setting in the year before school. In the case of prosocial behaviour and socio-emotional difficulties, both parents and teachers were asked to give ratings on children in the study (denoted as [P] and [t] in Table 7.2). Conflict and closeness were both reported on for the teacher-child relationship. Summaries of the results from Chapter 6 are reproduced below and discussed in relation to Table 7.2.

Prosocial behaviour

- Parent-reported prosocial behaviour was higher for girls, and higher for children with an easier temperament and who showed more positive and fewer negative social skills, and greater aptitude for numeracy in their early development. Children who had a history of receiving multiple care were rated as less prosocial.

- Children whom teachers rated highly for prosocial behaviour in the year before school were likely to have a close relationship with their mother and have shown more positive social skills and fewer negative social behaviours in their previous child care experience.

Socio-emotional difficulties

- Children were more likely to be rated by their parents as having more socio-emotional difficulties in families where mothers had a lower level of education and a less positive relationship with their child and reported less social support from friends and family. Difficulties were also higher in children who had been rated as showing behaviour problems and negative social interaction towards peers during earlier periods of their development, and who had a history of having more changes in their child care arrangements.

- In the year before school entry, teachers' ratings of children's socio-emotional difficulties were influenced primarily by the social skills children brought with them. However, poorer outcomes were noted for children who had experienced a pattern of more changeable child care in the early years.

Teacher-child relationship

- More conflicted student-teacher relationships were reported by teachers when children were from lower income families and had shown early indications of poorer social skills and poorer relationships with carers in previous years of child care.

- Teachers reported closer relationships with children who had an easy rather than a difficult temperament, and children who had fewer siblings. Close relationships were also more likely when children had a history of more positive relationships with their carers in previous years of child care.

It can be seen from the summaries and from Table 7.2 that different sets of factors predicted children's prosocial behaviour as rated by parents and teachers. This is not surprising given that they are basing their observations of the same child's behaviour in different settings (home and child care). The results for prediction of children's prosocial behaviour are interesting in that they include three child characteristics: gender, temperament and attachment (mother-child relationship) and one aspect of earlier development (social skills) suggesting that particular children may be more likely to exhibit helping behaviour towards others. It is interesting that multiple care arrangements in their history of child care appears to be linked to prosocial behaviour, perhaps reflecting the secure child care history of these prosocial children who had experienced fewer weekly care arrangements.

Children exhibiting socio-emotional difficulties that might be expressed through aggression (externalizing) or withdrawal (internalizing) are of concern in child care and school. The factors predicting socio-emotional difficulties were child and family factors (poorer mother-child relationship, lower maternal education and lack of social support for the mother), child care factors (more changes in care) and the child's early development (negative social skills and behaviour problems noted in earlier years). Again, features of current child care arrangements did not add to the prediction of socio-emotional difficulties over and above the effects of earlier child care history.

A range of different kinds of factors were found to predict aspects of the teacher-child relationship in the year before school. Closeness was predicted by a combination of child (easy temperament), family (fewer siblings) and child care history factors (positive teacher-child relationships in previous years). Conflict in the relationship with the teacher was predicted by a combination of family (lower income), child care history (poor teacher child relationships in previous years) and features of the child's early development (more negative social skills).

In terms of child care factors related to poor adjustment in the year before school, changeable care arrangements and poor teacher-child relationships in the early years of child care are the main predictive factors. The child care factors linked to good adjustment in the year before school were multiple care arrangements in the early years (linked with prosocial behaviour) and a history of good relationships in previous years of child care. Teacher-child relationships can be seen as an aspect of child care quality central to children's socio-emotional adjustment.

Table 7.2. Predictors of adjustment in the year before school

	Child	**Family**	**Child care history**	**Early development**	**Child care in year before school**
Prosocial behaviour –parent-rated	Easy temperament Girls		Fewer weekly care arrangements	Fewer negative and more positive social skills[t] Higher numeracy scores Fewer behaviour problems[p]	
Prosocial behaviour –teacher-rated		Close relationship with mother	Fewer weekly care arrangements	Fewer negative social skills	
Socio-emotional difficulties –parent-rated		Lower maternal education Poorer mother-child relationship Less social support for mother	More changes in care arrangements	More negative social skills[pt] More behaviour problems[p]	
Socio-emotional difficulties –teacher-rated			More changes in care arrangements	More negative social skills[t]	
Teacher-child closeness	Easy temperament	Fewer siblings	More positive teacher-child relationships		
Teacher-child		Lower income	Less positive teacher-child	More negative	

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| **conflict** | | | relationships | social skills | |

Note: For variables that were rated by both parents and teachers, p = reported by parents, t = reported by teachers/carers

Achievement in Kindergarten

Child outcomes in terms of achievement and adjustment in Kindergarten were also predicted by a mix of factors although children's child care history was found to play a significant part in the prediction of all outcomes except children's reported feelings about school, the teacher and their peers. The significant predictors for each outcome variable for Kindergarten will be discussed in turn.

Numeracy

- Children who showed fewer social problems and a better aptitude for numeracy in their early development prior to the year before school were more likely to achieve higher numeracy scores in Kindergarten.

As for the year before school, numeracy scores were predicted by numeracy achievement measured in previous years of the study in addition to a non-cognitive factor (fewer negative social skills) that would allow children to focus on their learning (see Tables 7.1 and 7.3).

Literacy

- Children who had fewer siblings and showed fewer negative social behaviours and a better aptitude for numeracy in their early development were more likely to achieve higher literacy scores in Kindergarten. Family social support was also identified as a predictor of literacy outcomes in Kindergarten.

A similar pattern of variables to those found for numeracy predicted literacy in Kindergarten: previous achievement and an absence of negative social skills that might disrupt learning. The fact that previous results for numeracy rather than for literacy emerged as a predictive factor can be explained by the high correlations found between literacy and numeracy scores on the Woodcock-Johnson Psycho-Educational Battery (see Chapter 6) so that literacy and numeracy scores can be seen as almost equivalent in terms of their predictive power.

An additional factor predicting children's literacy in both the year before school and Kindergarten was fewer siblings. This is consistent with previous research that has shown children's achievement to be higher when they come from smaller families. It is notable that age did not emerge as a significant predictor in the final set of variables for Kindergarten literacy whereas it did for literacy in the year prior to school. This result suggests that the age of the child is no longer important once children are in a similar literacy learning environment in the Kindergarten classroom.

Table 7.3. Predictors of achievement in Kindergarten

	Child	**Family**	**Child care history**	**Early development**	**Child care in year before school**	**Family support for learning**	**School environment**
Numeracy				Higher numeracy Fewer negative social behaviours[t]			
Literacy		Fewer siblings More social support		Higher numeracy Fewer negative social behaviours[t]			

Note: For variables that were rated by both parents and teachers, p = reported by parents, t = reported by teachers/carers

Adjustment in Kindergarten

A number of outcome variables related to children's adjustment in their first year of school. Outcome variables included those used for the year before school analyses in addition to children's reported feelings about school, their teacher and their peers as well as a new family variable introduced in the measures for Kindergarten children: shared home activities. A summary of results for each outcome is reproduced below from Chapter 6, followed by a general discussion of what kind of factors combined to predict child adjustment in Kindergarten.

Teachers' ratings of children's academic adjustment

- Children who were rated by their teachers as more successful in their adjustment to the learning demands of the classroom, that is, were more task oriented, less dependent and distractible, and more involved and active participants in learning activities, were likely to have shown an early aptitude for solving problems in numeracy. Family economic advantage and social support from friends and family were important predictors of academic adjustment; however, children who had received longer hours of formal child care in the early years were found to be less well able to meet the academic demands of their first year of school.

Parent-reported prosocial behaviour

- Children who were seen by their parents as more empathic and prosocial in their interactions with other children were more likely to be girls and to have shown fewer early behaviour problems and more positive social interaction with other children in child care. In relation to child care experience, children who spent more time in informal care settings and had fewer care arrangements per week in their early years were more likely to be seen by parents as prosocial with their peers.

Teacher-reported prosocial behaviour

- Children who were rated by their teachers as more prosocial in Kindergarten were more likely be girls and to have shown fewer negative social skills and a close relationship with their carers in their early child care settings. They were also more likely to have attended fewer hours of formal child care in their early years and longer hours of formal care/education in the year before school, and to currently attend more effectively managed classrooms in their first year at school.

Parent-reported socio-emotional difficulties

- Children who were rated by their parents as having more socio-emotional difficulties in Kindergarten were less likely to have had a close relationship with their carers and displayed negative social behaviour in their early child care settings and more likely to have shown behavioural problems and negative social behaviour, at home, earlier in their development. Difficulties were also higher for the children who spent longer hours in outside school hours child care that was informal.

Teacher-reported socio-emotional difficulties

- Children who were rated by their teachers as having more socio-emotional difficulties were likely to have had an early child care history characterised by less positive social skills, less positive relationships with carers and longer hours of formal care in addition to longer hours of formal care/education in the year before school and longer current hours of formal outside school hours care. They were also more likely to come from families with lower incomes, to have achieved lower numeracy scores when aged 3 to 4 years and to be in Kindergarten classrooms that were less effectively managed.

Teacher-reported teacher-child relationship

- Children who were reported by Kindergarten teachers to have formed closer relationships with them tended to be from more financially advantaged families. In their early development and in early child care, they were more likely to have had a less positive relationship with their mothers and to have shown fewer behaviour problems at home. Children with closer relationships with their Kindergarten teachers had also spent fewer hours in formal child care during their early years.

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- Teachers reported more conflict in their relationships with children who were from low income families or in which the mother had suffered from depression. A conflicted relationship was also more likely when the child's early child care experience included more hours of formal care and fewer hours of informal care, and was characterised by poorer teacher-child relationships in earlier care and more negative social behaviour. More conflicted teacher-child relationships in Kindergarten were also noted in children who had attended multiple care settings in the year before school.

Child-reported feelings about school

- Children who said that they liked school were more likely to have had fewer changes in carers or care arrangements, spent fewer hours in formal care and experienced more positive relationships with carers in their early child care experiences. They were also more likely to have more shared family activities at home.

- Children who attended Kindergarten classrooms that were well managed were happier in their relationships with their teachers. They were more likely to be girls with more siblings at home. In terms of child care, they were likely to be children who had shown fewer negative behaviours in the early years and who had experienced more care arrangements in the year before starting school.

- Children who attended Kindergarten classrooms that were well managed were happier in their relationships with peers. In their early child care experiences, they were more likely to have had positive relationships with their carers but to have shown fewer positive social skills with peers.

In a similar pattern to that seen in the analyses related to adjustment in the year before school, child care history and the earlier development of the child in terms of literacy, numeracy and social skills were the predominant predictors of adjustment in Kindergarten. However, family factors related to income played a part in predicting academic adjustment, socio-emotional difficulties and the teacher-child relationship.

Some factors related to children's current school experience were also part of the predictive model for school adjustment. Better classroom management was predictive of prosocial behaviour and fewer socio-emotional difficulties as well as children's liking of their teacher and peers. Longer hours in either formal or informal before and after school care were predictive of socio-emotional difficulties. Gender was the only child factor emerging in this set of analyses and was predictive of prosocial behaviour (more likely in girls) and child liking of their teachers.

Table 7.4. Predictors of adjustment in Kindergarten

	Child	Family	Child care history	Early development	Child care in year before school	School
Academic adjustment		Higher income More social support	Shorter hours of formal care	Higher numeracy		
Prosocial behaviour – parent-rated	Girls		More hours in informal care Fewer weekly care arrangements	More positive social skills[p] Fewer behaviour problems[p]	Lower quality of care	
Prosocial behaviour – teacher-rated	Girls		Fewer hours in formal care[t] More positive teacher-child relationship	Fewer negative social skills[t]	Longer hours of formal care/education	Better managed classroom
Socio-emotional difficulties – parent-rated		Less social support	Less positive teacher-child relationships	More behaviour problems[p] More negative social skills[tp]		Longer hours in informal outside school hours care[p]
Socio-emotional difficulties – teacher-rated		Lower income	Longer hours of formal care Less positive teacher-child	Fewer positive social skills[t] Lower numeracy when		Longer hours in formal OOSH care Less well managed classroom

				relationships	3-4		
Teacher-child relationship closeness		Higher income Poorer mother-child relationship	Fewer hours in formal care	Fewer behaviour problems[p]		
Teacher-child relationship conflict		Lower income Maternal depression	More hours of formal care Fewer hours of informal care Less positive teacher-child relationships	More negative social skills[t]	More weekly care settings	
Child liking of school		Involvement in shared family activities	Fewer changes of care arrangements More positive teacher-child relationships		Fewer hours in formal care/education	
Child liking of teacher	Girls	More siblings		Fewer negative social skills[t]	More weekly care arrangements	Well managed classroom
Child liking of peers			More positive teacher-child relationships	More positive social skills[t]		Well managed classroom

Note: For variables that were rated by both parents and teachers, p = reported by parents, t = reported by teachers/carers

7.2 Conclusions about the Role of Child Care in Preparing Children for School Transition

The results of this study show that child care experiences play an important part in preparing children for the transition to school. Aspects of children's child care history, in combination with child and family factors and, to a lesser extent current child care characteristics, predict children's achievement and adjustment in the year before school and in Kindergarten (first year at school).

The important fixed child factors include age, gender, temperament and number of siblings (involved in the prediction of literacy in the year before school, prosocial behaviour in the year before school and Kindergarten, prosocial behaviour in the year before school, and literacy and child liking of school respectively). Children's numeracy and literacy levels and their social skills were predictive factors for many of the outcomes. Previous numeracy and literacy levels were predictive of current levels in the year before school and in Kindergarten.

Child care was the focus of the study and very detailed measures were taken of multiple aspects of children's child care arrangements. The key child care predictors of literacy levels in the year before school were found in children's prior child care history: attending formal child care/education settings for longer hours per week in the year before starting school and a history of attending more care arrangements a week were predictive of lower literacy scores. After accounting for the effects of children's early development in numeracy, child care factors were not part of the prediction of literacy or numeracy level in Kindergarten.

Characteristics of children's earlier child care were also part of the prediction of their adjustment in the year before school. Multiple care in the early years was associated with lower prosocial behavior. More changes in care arrangements were predictive of children having more socio-emotional difficulties, as rated by parents. Children whom teachers had rated as having more behavioural difficulties had experienced more changes in care arrangements in their early years. More positive relationships with carers in children's early experiences of regulated child care were predictive of better teacher-child relationships in the year before school.

In the prediction of adjustment in Kindergarten, factors from children's child care history also played a part. Longer hours in early formal care arrangements predicted poorer academic adjustment, less prosocial behavior, more socio-emotional difficulties, as well as less closeness and more conflict in the teacher-child relationship. In contrast, longer hours of early informal care had a positive effect on prosocial behavior, as rated by parents, and on the teacher-child relationship at school. Multiple care in the early years predicted lower prosocial behavior at school age as rated by parents. Multiple care in the year before school was linked to more conflict in the teacher-child relationship at school. More changes of care arrangements in the early years predicted children's lower ratings of liking school.

Children's relationships with carers and teachers in their early care experiences were important predictors of school outcomes. Positive teacher-child relationships in child care predicted closeness in the relationship with the teacher, prosocial behaviour, and the children reporting that they liked school. Poorer relationships with teachers in the early years of child care predicted more conflict in the relationship with the Kindergarten teacher and more socio-emotional difficulties in the first year of school.

In summary, the key child care factors emerging in this study in relation to children's achievement and adjustment around the time of school transition were hours of care, multiple and changeable care arrangements and the quality of the teacher-child relationship.

7.3   Conclusions about the Child Care Choices Study

The Child Care Choices study is unique in Australia in several ways. It is a prospective longitudinal study involving the collection of child care data in addition to child, family and school information on several hundred children over a period of six years. The importance of longitudinal design in a study of this kind is underlined by the findings of this study. Children's earlier development and early child care history were found to be the predominant predictors of their development and adjustment in the year before school and the first year of school, more so than characteristics of children's current or immediately prior educational settings.

Studies of school transition must look earlier than the year immediately prior to school to explain what leads to a successful transition. These findings also have implications for policies that focus on the year immediately prior to school as a way to provide better preparation for school for all children or for particular groups of children.

In terms of comparison with the Longitudinal Study of Australian Children (Harrison et al., in press), LSAC will collect similar data on a larger and more representative sample in two age cohorts, but the Child Care Choices project was able to ask far more detailed questions about child care. In addition, while LSAC is confined to gaining its data primarily from parent report in interviews, supplemented by a teacher mail-back questionnaire, the Child Care Choices study employed a wide range of data collection techniques (telephone interviews, questionnaires, observations, child assessments, interviews) from multiple sources (parent, teacher, child, observer) sources. In some cases this allowed us to report aspects of children's development from two or more perspectives (e.g., children's social skills rated by parents and teachers).

The Child Care Choices study also differs from LSAC in its annual collection of data (compared with biennial) and in its collection of observed ratings of child care quality (rather than relying on teacher report). It is also unique in its focus on regulated care in the years before school reflecting the policy focus of the Department of Community Services.

Information from this study about how features of child care history can affect children's transition to school has implications for the regulation and quality assurance of child care. These are particularly important in the current context of reforms to the Australian quality assurance system. Australian data has long been needed to provide an evidence base for these important policy decisions.

The study is also important for parents. Many of the factors found in the study to predict more negative outcomes for children, particularly in relation to adjustment in the year before school and the first year of school can inform the choices parents make about child care in the early years. This study has implications for parental decisions about, for example, the weekly hours their children spend in formal and informal child care and the number of changes they make to children's early care arrangements.

In conclusion, the Child Care Choices study contains valuable data for on-going analysis of policy-related child care and social policy questions. The current report, focused on predictors of children's successful adjustment to school has important implications for both policy-makers and parents. It is the first large longitudinal study in Australia to present such a large body of evidence for decisions to be made that will affect the welfare of young children in this country as they experience the care and educational settings we organize for them in their early childhood years.

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APPENDICES

Appendix 1: Descriptive statistics for predictor variables used in analyses of child outcomes in the year before school

	N	Minimum	Maximum	Mean	S.D.
Child's gender	319	1	2	1.49	.50
Easy –difficult temperament	275	1.76	5.16	3.31	.58
Estimated age in year before school	315	3.68	6.93	5.11	.43
Urban or rural in Wave 1	319	1.00	2.00	1.47	.50
What is your highest level of education?	302	1	8	6.03	1.65
Income in transition - $1000s	299	10.00	720.00	115.78	78.05
Total number of children in the house, year before school	301	1.00	5.00	2.33	.74
Average score on social support across early years	310	19.00	65.00	30.64	6.82
Pianta parent/child overall relationship with parent, average across early years	317	53.00	142.00	87.10	15.30
depression CESD	274	.00	49.00	9.42	8.73
Total number of care arrangements averaged over early years	319	.75	3.33	1.51	.58

Total number of childcare changes (centre + carer), average across early years	319	.00	7.75	1.10	1.08
Pianta carer/child overall relationship with carer, average across early years	316	73.00	137.00	115.01	8.87
(CATI) At what age (in months) did [+child+] start child care?	319	0	48	10.11	7.12
Average quality of care in early years	305	3.59	6.39	5.16	.54
Average hours in formal care in early years	319	.00	52.00	24.28	10.53
Average hours in informal care in early years	319	.00	54.00	3.30	6.84
Vineland communication standardised score, average	303	60.00	134.50	104.68	11.78
Gresham Positive social skills, parent rating, average across early years	299	12.00	35.00	27.76	3.99
Gresham Negative social skills, parent rating, average across early years	299	4.00	19.00	9.04	2.42
Gresham Positive social skills, carer rating, average across early years	313	8.00	35.00	27.13	4.11
Gresham Negative social skills, carer rating, average across early years	313	4.00	18.00	8.19	2.72
Richmann Overall behaviour problems score, 3 to 4 year olds	214	1.18	2.41	1.58	.22
Richmann Overall behaviour problems score, 3 to 4 year olds, carer rating	201	1.00	2.13	1.31	.21
PPVT standard score at age 3 or closest time to age 3	265	61.00	143.00	102.59	12.06
Woodcock Johnson Applied Problems at age 3 or closest time to age 3	286	.00	23.00	11.38	4.45

Mean ECERS score in year before school	254	3.19	6.95	5.37	.69
Hours in formal care in year before school	309	.00	127.00	24.67	13.47
Hours in informal care in year before school	296	.00	198.00	5.05	16.94
Total number of care arrangements in year before school	309	.00	7.00	1.53	.89

Appendix 2: Descriptive statistics for predictor variables used in analyses of child outcomes in Kindergarten

	N	Minimum	Maximum	Mean	S.D.
Easy –difficult temperament	294	1.76	5.16	3.32	.56
Child's gender	344	1	2	1.49	.50
Estimated age in Kindergarten year	344	4.00	7.59	5.90	.50
Urban or rural in Wave 1	344	1.00	2.00	1.47	.50
What is your highest level of education?	320	1	8	5.95	1.65
Income in Kindergarten - $1000s	293	6.00	1500.00	131.58	144.16
Total number of children in the house, Kindergarten	340	1.00	5.00	2.31	.79
depression CESD	294	.00	49.00	9.45	8.55
Average score on social support across the early years	327	19.00	65.00	30.66	6.90
Pianta parent/child overall relationship with parent, average across early years	337	53.00	142.00	88.36	16.12
(CATI) At what age (in months) did [+child+] start child care?	344	0	48	10.21	7.19
Average quality of care in early years	324	3.55	6.39	5.15	.55
Total number of childcare changes (centre + carer), average across early years	344	.00	7.75	1.08	1.09

Pianta carer/child overall relationship with carer, average across early years	331	73.00	137.00	114.94	9.10
Total number of care arrangements averaged over early years	344	.75	3.33	1.51	.58
Average hours in formal care in early years	344	.00	70.00	24.63	10.94
Average hours in informal care in early years	344	.00	52.00	3.00	6.05
Vineland communication standardized score, average	322	60.00	135.50	105.14	11.90
Gresham Positive social skills, parent rating, average across early years	318	12.00	35.00	27.76	3.94
Gresham Negative social skills, parent rating, average across early years	318	4.00	19.00	9.09	2.46
Gresham Positive social skills, carer rating, average across early years	329	8.00	35.00	27.08	4.14
Gresham Negative social skills, carer rating, average across early years	330	4.00	18.00	8.33	2.82
Richmann Overall behaviour problems score, 3 to 4 year olds	214	1.18	2.41	1.58	.22
Richmann Overall behaviour problems score, 3 to 4 year olds, carer rating	199	1.00	2.13	1.31	.21
PPVT standard score at age 3 or closest time to age 3	266	61.00	143.00	102.80	11.79
Woodcock Johnson Applied Problems at age 3 or closest time to age 3	294	.00	26.00	11.66	4.55
Hours in formal care, year before school	318	.00	127.00	24.25	13.79
Hours in informal care, year before school	303	.00	198.00	4.97	16.26

Mean ECERS score in year before school	254	3.19	6.64	5.33	.71
Total number of care arrangements in year before school	318	.00	7.00	1.51	.89
Total hours in formal before/after school care, Kindergarten	331	.00	25.00	2.99	4.94
Total hours in informal before/after school care, Kindergarten	325	.00	49.00	2.63	5.95
Total number of transition activities attended/used	344	1.00	9.00	7.41	1.78
Child activities / parent support for child learning, reading, Kindergarten	344	1.00	4.00	3.46	.73
Child activities / parent support for child learning, average excluding reading,	344	1.00	4.00	2.49	.48
COI-K management, Kindergarten	284	5.00	15.00	10.05	1.79
COI-K social climate, Kindergarten	284	11.00	25.00	19.82	3.06
COI-K instruction, Kindergarten	284	2.00	10.00	6.66	1.53

Appendix 3 Research output from Child Care Choices Project

Book chapter

Ungerer, J., & Harrison, L. (2008). Research on children, families and communities. In J. Bowes and R. Grace (Eds), *Children, families and communities: Contexts and consequences*, 3rd edn (pp. 22-36). Melbourne: Oxford University Press.

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Bowes, J., Sanson, A., Wise, S., Ungerer, J., Harrison, L., Watson, J., & Simpson, T. (2002). Multiple childcare arrangements in the early years: Implications for children, families and child care professionals. *Talking Early Childhood, 4*, 2-5. (Conference proceedings published in a special edition of the journal)

Bowes, J., Wise, S., Harrison, L., Sanson, A., Ungerer, J., Watson, J., & Simpson, T. (2003). Continuity of care in the early years? Multiple and changeable child care arrangements in Australia. *Family Matters, No. 64*, 30-35.

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Bowes, J., Harrison, L., Sanson, A., Wise, S., Ungerer, J., Watson, J., & Simpson, T. (2003). Families and child care arrangements: Findings from the Child Care Choices study. *Proceedings of the Health, Work and Families Forum*. Canberra: Australian National University, 25-26 August. Available at: http://nceph.anu.edu.au/Health_For_Life/publications/final_colour.pdf

Published abstracts

Cohen, J., Bowes, J., Ungerer, J., Harrison, L., Simpson, T., Sanson, A., & Wise, S., (2004). Introduction to the child care choices study. The Abstracts of the 39th Conference of the Australian Psychological Association, *Australian Journal of Psychology, 56* Supplement, p. 170.

Bowes, J., Ungerer, J., Wise, S., Sanson, A., Harrison, L., & Simpson, T. (2004, October). Multiple care, parental stress and family management of childcare arrangements. The Abstracts of the 39th Conference of the Australian Psychological Association, *Australian Journal of Psychology, 56* Supplement, p. 162.

Wise, S., Sanson, A., Bowes, J., Ungerer, J., Wise, S., Sanson, A., Harrison, L., & Simpson, T. (2004, October). The influence of multiple childcare arrangements on children's communication skills and behavioural adjustment. The Abstracts of the 39th Conference of the Australian Psychological Association, *Australian Journal of Psychology, 56* Supplement, p. 235.

Ungerer, J., Harrison, L., Bowes, J., Wise, S., Sanson, A., & Simpson, T. (2004, October). The impact of multiple care on parent-child and carer-child relationships. The Abstracts of the 39th Conference of the Australian Psychological Association, *Australian Journal of Psychology, 56* Supplement, p. 231.

International conferences

Harrison, L., Bowes, J. M., Sanson, A., Wise, S., Ungerer, J., Watson, J., & Simpson, T (2003, April). *When are too many care settings too much? Outcomes for children in multiple childcare.* Paper presented in the symposium, *Doing no harm: New ways of improving childcare quality.* (Convenor: Ann Sanson; Discussant: Carollee Howes) at the biennial meetings of the Society for Research in Child Development, Tampa, Florida.

Bowes, J., Sanson, A., Wise, S., Ungerer, J., Harrison, L., Watson, J., & Simpson, T. (2002, June). *Multiple childcare arrangements in the early years: Implications for children, families and child care professionals.* Paper presented at the Creche and Kindergarten International Early Childhood Conference, Broadbeach, Queensland.

Bowes, J., Harrison, L., Sanson, A., Wise, S., Ungerer, J., Watson, J., & Simpson, T. (2002, August). *The effects of multiple child care arrangements on young children: A comparative study of urban and rural Australian families.* Paper in a symposium, *Childcare factors affecting child adjustment and competence: Ways of improving child care* (Convenor: Sarah Wise; Discussant: Edward Melhuish). XVIIth Biennial Meeting of the International Society for the Study of Behavioral Development, Ottawa, Canada.

Harrison, L., Simpson, T., Bowes, J., Ungerer, J., Watson, J., Wise, S., & Sanson, A. (2002, August). *The use effects of multiple child care arrangements : A comparative study of urban and rural Australians.* Paper presented at the 12th European Conference on Quality in Early Childhood Education, Cyprus.

Bowes, J., Sanson, A., Wise, S., Ungerer, J., Harrison, L., & Simpson, T. (2004, July). Division of labor and parental stress in relation to multiple and changeable child care arrangements. Poster presented at the International Society for the Study of Behavioral Development Conference, Ghent, Belgium.

Sanson, A., Wise, S., Bowes, J., Ungerer, J., & Harrison, L. (2004, July). Understanding the influence of multiple childcare arrangements on child emotional and behavioural adjustment and communication skills. Poster presented at the International Society for the Study of Behavioral Development Conference, Ghent, Belgium.

Ungerer, J., Taylor, A., Bowes, J., Wise, S., Edwards, B., Simpson, T., & Sanson, A. (2006, July). An evaluation of child care factors in young children's social-emotional development. Paper presented at the 19th Biennial Meeting of the International Society for the Study of Behavioral Development, Melbourne.

Bowes, J., Neilsen-Hewett, C., Fiora., M., Taylor, A., Simpson, T., & Wise, S. (2006, July). Young children's social skills with peers: Reports from primary carers at home and in childcare. Paper presented as part of a symposium convened by J. Bowes and J. Bryant,

Contextual perspectives on children's gendered relationship with peers, at the 19th Biennial Meeting of the International Society for the Study of Behavioral Development, Melbourne.

Harrison, L., Skouteris, H., Watson, J., & Ungerer, J. (2006, September). Government policy contributes to quality infant-toddler childcare: Longitudinal trends in Australia. Paper presented at the World Association for Infant Mental Health Conference, Paris.

Bowes, J., Harrison, L., Taylor, A., & Wise, S. (2008, July). *Does early exposure to common communicable illnesses in childcare have a lasting effect on child health? Paper presented at the* 20th Biennial Conference of the International Society for the Study of Behavioral Development, Würzburg, Germany.

National conferences

Bowes, J., Sanson, A., Wise, S., Ungerer, J., Harrison, L., Watson, J., & Simpson, T. (2002, January). *Young children and multiple childcare arrangements.* Paper presented at the 10th Annual Conference of Australian Research in Early Childhood, Melbourne.

Bowes, J., Harrison, L., Sanson, A., Wise, S., Ungerer, J., Watson, J., & Simpson, T. (2002, December). *Children's development in the context of multiple and changeable childcare.* Paper presented as part of the symposium *Longitudinal Studies of Early Childhood in Australia* (Convenor: Jennifer Bowes; Discussant: Gary Resnick) at the Conference of the Australian Association for Research in Education, Brisbane.

Bowes, J., Sanson, A., Wise, S., Ungerer, J., Harrison, L., Watson, J., & Simpson, T. (2003, January). *Parents' reports of the use of and reasons for multiple childcare arrangements.* Paper presented at the 11th Annual Conference of Australian Research in Early Childhood, Melbourne.

Watson, J., Bowes, J., Ungerer, J., Harrison, L., Simpson, T., Wise, S., & Sanson, A. (2003, February). *Voices from the field: The effect of multiple care arrangements on young children.* Paper presented as part of the symposium, *Australian childcare and its effects on children: Implications for childcare policy* (Convenor: Sarah Wise; Discussant: Jennifer Bowes) at the Eighth Australian Institute of Family Studies Conference, Melbourne.

Wise, S., Harrison, L., Simpson, T., Sanson, A., Bowes, J., Ungerer, J., & Watson, J. (2003, September). *Understanding multiple and changeable childcare arrangements involving family day care.* Invited paper presented at the 4th National Family Day Care Conference, Sydney.

Cohen, J., Bowes, J., Ungerer, J., Watson, J., Sanson, A., Wise, S., Harrison, L., & Simpson, T. (2003, September). *Multiple child care, temperament and behaviour in the first three years.* Poster presented at the Conference of the Australian Psychological Society, Perth.

Bowes, J., Harrison, L., Sanson, A., Wise, S., Ungerer, J., Watson, J., & Simpson, T. (2003, August). *Families and child care arrangements: Findings from the Child Care Choices study.* Paper presented at the Health, Work and Families Forum, Canberra.

Bowes, J., Harrison, L., Sanson, A., Wise, S., Ungerer, J., Watson, J., & Simpson, T. (2004, January). Parental stress and division of labour associated with arranging and managing child care. Paper presented at the 10th Annual Conference of Australian Research in Early Childhood, Melbourne.

Cohen, J., Bowes, J., Ungerer, J., Harrison, L., Simpson, T., Sanson, A., & Wise, S., (2004, October). Introduction to the child care choices study. Paper presented at the 39th Conference of the Australian Psychological Association, Sydney.

Bowes, J., Ungerer, J., Wise, S., Sanson, A., Harrison, L., & Simpson, T. (2004, October). Multiple care, parental stress and family management of childcare arrangements. Paper presented at the 39th Conference of the Australian Psychological Association, Sydney.

Wise, S., Sanson, A., Bowes, J., Ungerer, J., Wise, S., Sanson, A., Harrison, L., & Simpson, T. (2004, October). The influence of multiple childcare arrangements on children's communication skills and behavioural adjustment. Paper presented at the 39th Conference of the Australian Psychological Association, Sydney.

Ungerer, J., Harrison, L., Bowes, J., Wise, S., Sanson, A., & Simpson, T. (2004, October). The impact of multiple care on parent-child and carer-child relationships. Paper presented at the 39th Conference of the Australian Psychological Association, Sydney.

Bowes, J., Sanson, A., Wise, S., Ungerer, J., Harrison, L., Watson, J., & Simpson, T. (2005, January, 19-21). Patterns of care for young children: Links to social, cognitive and emotional development. Paper presented at the Annual Conference of Australian Research in Early Childhood Education, Frankston.

Edwards, B., Wise, S., Bowes, J., Sanson, A., Ungerer, J., Harrison, L., & Simpson, T. (2005, February 9-11). Why fathers and grandparents are included in children's weekly care arrangements. Paper presented at the 9th Australian Institute of Family Studies Conference, Melbourne.

Wise, S., Edwards, B., Bowes, J., Sanson, A., Ungerer, J., Harrison, L., & Simpson, T. (2005, February 9-11). The relation of multiple and changeable childcare arrangements to early communication skills. Paper presented at the 9th Australian Institute of Family Studies Conference, Melbourne.

Bowes, J., Taylor, A., Ungerer, J., Harrison, L., Wise, S., Sanson, A., & Simpson, T. (2006, May). Parents managing care. Paper presented at the 2nd Australian Parenting Conference, Adelaide.

Bowes, J. (2006, May). *Parents managing childcare.* National Parenting Conference, Adelaide.

Bowes, J., & Harrison, L. (2007, July). Patterns of care involving regulated childcare settings: Parent perspectives. 15th Biennial Conference of the Australasian Human Development Association, Sydney.

Bowes, J. Grandparents' involvement in regular part-time care of their young grandchildren. Invited paper presented at the Grandparenting Forum NSW, Sydney, July, 2008.

Bowes, J. Research findings from *Child Care Choices*. Keynote address at Pushing New Boundaries: Early Childhood in Action Conference of UnitingCare Burnside, Newcastle, November, 2008.

Harrison, L, Bowes, J., Sweller, N., Murray, E., Stirling, C., & Hutchesson, R. (2008, December). The Child Care Choices (CCC) study at school-age: Examining personal, interpersonal, home and classroom correlates of children's adjustment to the first year of school. Paper presented at the International Education Conference of the Australian Association for Educational Research, Brisbane.

Stirling, C., & Hutchesson, R. (2008, December). Exploring the reasons why some children hate their first year at school. Paper presented at the International Education Conference of the Australian Association for Educational Research, Brisbane.

Bowes, J., Harrison, L., Sweller, N., Taylor, A., & Neilsen-Hewett, C. (2009, July). Child care influences on children's adjustment and achievement in the first year of school. Paper presented at the Australian Social Policy Conference, Sydney.

Seminars

Wise, S., Sanson, A. and the Child Care Choices Research Team (2002, May). Towards understanding the extent of, and reasons for, multiple and changeable childcare arrangements in Australia. Seminar at the Australian Institute of Family Studies, Melbourne.

Harrison, L., & Simpson, T. (2005, April). Presentation to the Office of Childcare and Department of Community services staff, Department of community services, Ashfield.

Ungerer, J. (2005, May). Child Care Choices of NSW Families. Colloquium, Department of Psychology, University of NSW, Kensington.

Bowes, J. (2005, May). Patterns of care in the early years and links to child development. Colloquium, Institute of Early Childhood, Macquarie University, Sydney.

Bowes, J. (2007, October). Child Care Choices Research project findings. Department of Community Services Research to Practice Seminar, Sydney.

Presentations to Community Groups

Bowes, J. (2004, March). Multiple child care and its impact on children and families. Invited address to the annual general meeting of OMEP Australia (NSW Chapter), Sydney.

Bowes, J. & Greenwood, S. (2004, April). Child Care Choices: A Research Case Study. Presented at the Community and Family Studies HSC Enrichment Day, Macquarie University.

Bowes, J. (2004, May). Current research: Implications for child care. Workshop presented at the Reaffirming our Professionalism Institute of Early Childhood Outreach Conference, Macquarie University.

Bowes, J. (2004, November). Child Care Choices of NSW Families. Invited address to the Child Care NSW Conference, 'Child Care, a Professional Approach', Manly.

Bowes, J. (2005, May). Patterns of care and links to child development. Invited address to the Annual General Meeting of the Ashfield Infants Home, Ashfield.