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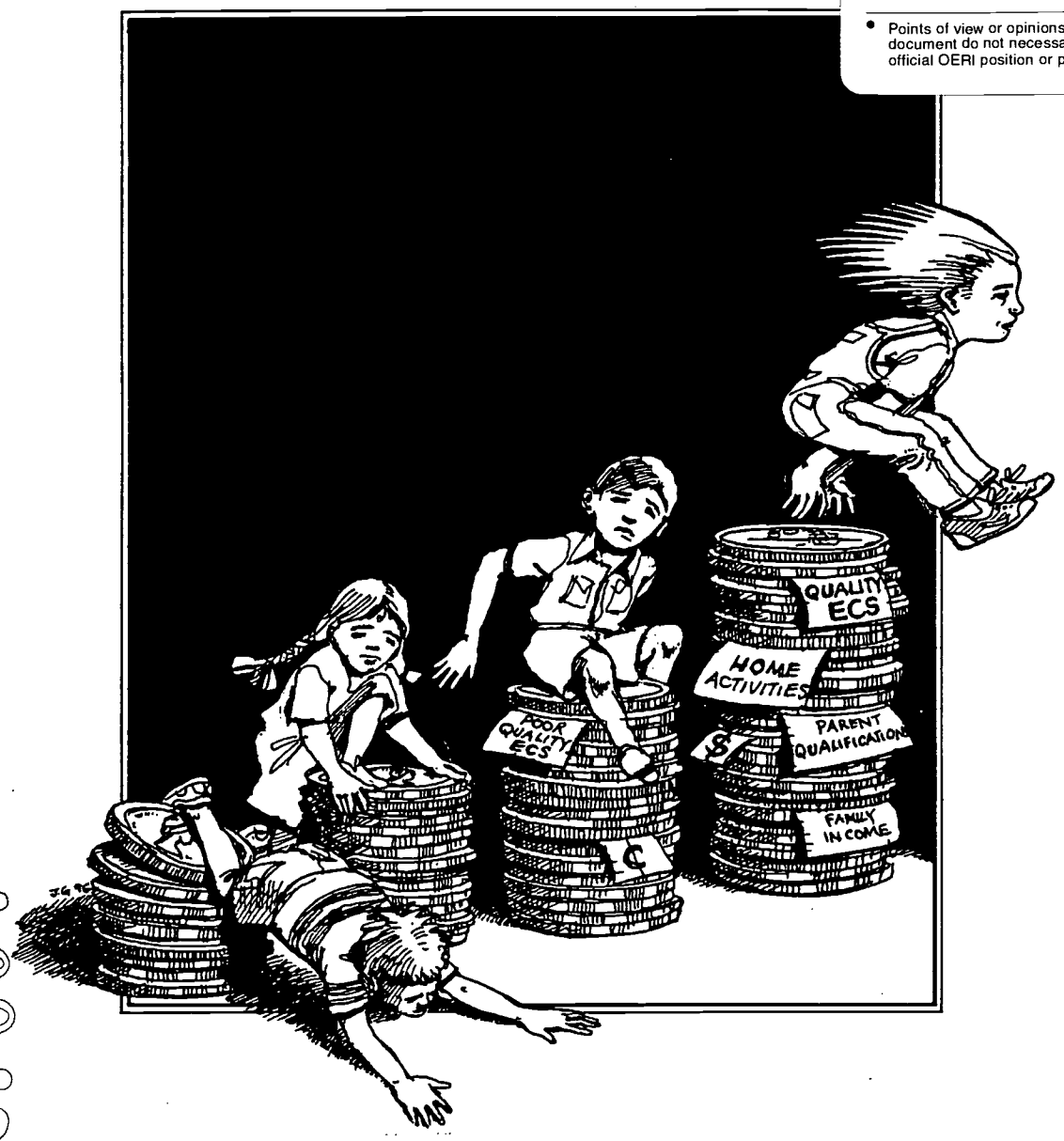
ABSTRACT

The longitudinal New Zealand project "Competent Children" has two objectives: to describe and analyze variations and changes in children's cognitive, social, communicative and problem-solving competencies from the time they begin school at the age of five; and to determine what impact children's early childhood education experiences, family resources, home activities, and school resources have on these competencies. This report covers the second phase, when children were aged 6 and at the end of their first year at school and compares those data with data for age 5, when the children were still in early childhood education programs. The chapters in the report delineate findings in the areas of family resources and children's health and behavior; activities at home; and children competencies as they relate to their early childhood experience, and school and family resources. The report highlights the following findings: (1) children made the most competency gains in mathematics and in reading between ages 5 and 6; (2) children's mathematics scores at age 5 were the best predictor of their overall performance at age 6; (3) a year after the children left preschool, early childhood education continued to make a contribution to children's competency levels; (4) children who had at least 3 years of early childhood education experience scored higher than those with fewer years; and (5) factors affecting scores included small class size, socioeconomic mix of the school, prior family experiences and resource levels, children's current home activities, and family income. Appendices include principal components and factor analyses, and the study instruments. (Contains 43 references, 83 tables, and 3 figures.) (LBT)

COMPETENT CHILDREN AT 6
FAMILIES, EARLY EDUCATION, AND SCHOOLS

Cathy Wylie, Jean Thompson,



New Zealand Council for Educational Research

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IN HONOUR AND MEMORY OF
JUNE VIZE,
OUR COLLEAGUE AND CONTRIBUTOR,
SADLY MISSED

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We remain deeply grateful to the children, families and teachers who participate in the project, and the Ministry of Education for their continued financial support. We have been heartened by the interest we have encountered, and the real desire to know what contributes to children's competencies and how we might best support New Zealand's children.

Cathy Lythe had the demanding work of organizing the fieldwork, no easy task. The low attrition rate between phases is but one of her many achievements in this role. Anne Kerslake Hendricks shared with Cathy the many day-to-day demands of fieldwork coordination and assisted in preparing information for data analysis. We were fortunate to retain a large number of our team of very competent fieldworkers: Philippa Burch, Natalie Coynash, Anne Harvey, Pat Hubbard, Patricia Meagher-Lundberg, Wendel Richardson, Le'autuli'ilangi Malaeta Sauvao and Barby Wylie. We were also grateful to Shanee Barraclough and Jude Berman for assistance with the out-of-Wellington fieldwork; Anne Harvey and Phillppa Burch for helping to check and code the information collected for data entry; Le'autuli'ilangi Malaeta Sauvao for her Samoan translation skills. Professor W E Tunmer, Faculty of Education, Massey University, Helen Visser, Ministry of Education, and, at NZCER, Cedric Croft, Karyn Dunn and Jacky Burgon helped in the development of our competency measures. Gloria Hansen provided most of the data management and descriptive data analysis, and Roberta Tiatia the wordprocessing and graphics skills needed for this report. We also wish to thank Anne Meade for her continued and incisive support. We owe much to Anne Else's editing of the report.

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EXECUTIVE SUMMARY

Competent Children is a longitudinal project with two main aims: to describe and analyse variations and changes in children's cognitive, social, communicative and problem-solving competencies from the time they begin school, at the age of 5; and to see what impact children's early childhood education experiences, family resources, home activities, and school resources have on these competencies. *Competent Children at 5* (1996) covered the first phase of results from the project, when the children were aged 5. This report covers the second phase, when the children were aged 6, at the end of their first year at school, and it compares the data for age 5 with the data for age 6.

Between the ages of 5 and 6, children made the most competency gains in Mathematics and in reading (an aspect of Literacy). Only around 10 percent of the children could read at age 5; only around 10 percent could *not* read at age 6. Use of the hands for cutting and tracing became more precise. Overall scores for Social Skills, Communication, Perseverance, and Curiosity stayed the same or declined slightly.

The first year at school also resulted in a marked closing of the **gaps in scores** for Mathematics and Literacy which had existed between children at mainly low income early childhood education centres, and children at mainly middle income centres, and also between Pakeha/European and Māori children, before they came to school. This first year also narrowed the gaps between children who had English as a second language, and others.

Individual children's scores at age 5 were not good predictors of their scores at age 6, with the exception of their performance in Mathematics, and, to a lesser extent, Literacy and Logical Problem-Solving. However, it was common for children who scored in the top quartile of most of the competencies at age 5 to remain in the top quartile at age 6, and it was unusual for children who had scored in the lowest quartile at age 5 to shift into the top two quartiles at age 6. For children who had scored in the two middle quartiles at age 5, movement could be either up or down.

Our analysis raises some questions about whether it is possible to predict children's competency levels after their first year of school from their competency levels a year earlier. Only the Mathematics competency showed what seemed to be a reasonable level of predictability. Our suggested reasons for this lack of predictability include a change in criteria for the teacher ratings, changes in our measures for literacy, and the malleability of children's development at this young age. This lack of predictability between scores at age 5 and scores at age 6 matters if crucial decisions are being made for the children (such as selection for school or class), or if school or teacher performance is being gauged by the "value" they add to children's performance over the initial school year. Our data suggests caution about the use of children's initial achievement data for these purposes.

Our work in finding and devising appropriate competency measures at this age also convinces us that it is unreal to expect to be consistently able to find repeatable measures for children at different ages. In the real world, therefore, comparing children's assessments is likely to be "messy". This may encourage concentration on the traditional areas of Literacy and Mathematics, at a time when there is general acknowledgement by educationalists, parents and employers, that while these competencies are certainly necessary, they are insufficient in themselves to produce competent citizens.

Children's Mathematics scores at age 5 were the best predictor of their overall performance at age 6. Yet parents seemed to use reading book level as their main indicator of their child's performance. Their satisfaction levels with their child's initial school performance also reflected the child's ease in the school situation, and how well he or she had settled into school. The children whose progress most concerned parents were those who were on the lower reading book levels, had been unenthusiastic about starting school, had taken a while to settle into school, had changed schools during the year, were unhappy or lacked confidence, were not being sufficiently extended, and/or were boys. There was evidence of the need for better

communication between teachers and parents about children's progress.

There was more dissatisfaction among the parents of children attending private or decile 9–10 schools (that is, schools with a concentration of children from families at the upper end of the socio-economic scale). Yet private school children scored as well as others on all measures bar one, where they scored better, and decile 9–10 school children scored as well as others on most measures, and higher on some measures. Levels of parental satisfaction therefore appear to be shaped by parental expectations as well as by children's levels of competency.

A year after the children had left early childhood education, it continued to make a contribution to children's competency levels. Indeed, we found new associations appearing, as well as the continuation of some which were evident at age 5. The associations with Mathematics and Literacy remained, and the associations with Perseverance, Communication, and Logical Problem-Solving were more likely to emerge as "lag" or "sleeper" effects. Some associations which had been present at age 5, particularly those related to Social Skills, were no longer evident at age 6. We conclude that the full impact of early childhood education can be evaluated only by collecting both current and longitudinal data.

Children who had at least 3 years early childhood education experience scored higher than others on the competency measures for Mathematics, Communication, Word Recognition, Fine Motor Skills, Individual Responsibility, and Logical Problem-Solving. Children who had attended early childhood education centres which scored well on our rating of the quality of interaction between staff and children did better than others on the measures of Perseverance, Word Recognition, Invented Spelling, and Individual Responsibility. Playcentre attendance helped children's Perseverance, as did attendance at early childhood education centres which regularly allowed children to complete their activities. Children who attended early childhood education centres serving a mainly middle income community did better than others on 6 of the project's original 10 competencies.

Small class sizes could make up some of the difference in scores for children who had attended early childhood education for less than 3 years, or had experienced low quality staff:child interaction.

Children's responses to difficulties encountered in their schoolwork indicated the importance of the strategies they learn from teachers. Their responses were not generic, but specific to each curriculum area. For example, a child might sound out the letters of a new word encountered in reading, but not use the same approach in trying to spell a word when writing.

We found that **the socio-economic mix of the school also made a difference for children,** even in their first year of school. Children attending schools serving a mainly middle income community were advantaged compared with children attending schools serving a mainly low income community. However, children from high income families did well no matter what the socio-economic mix of their school was.

There are a number of implications here for early childhood education and primary school policy, and also for programme emphases. Literacy skills benefit from the quality of staff:child interaction in early childhood education centres, and from the length of time spent in early childhood education. They also benefit from the early childhood centre's socio-economic mix. This may seem less amenable to policy change: obviously, it is not possible for every centre to serve mainly middle income communities, unless we have a more egalitarian society. However, policy can aim to keep the social mix of early childhood education centres and services as broad as possible, through making access to services independent of family income. It can also aim to provide more support to early childhood education centres serving low income families, in order to ensure that all such centres can offer high quality staff:child interaction.

This would mean improving staff:child ratios in kindergartens and ensuring that all early childhood education staff are well trained. It would also mean providing resources and programmes which encourage mathematics, literacy, communication, logical problem-solving, and perseverance. Perhaps the Books in Homes scheme should be tried out in early childhood education centres serving low income communities, and extended to Games at Home, but without

requiring services and centres which are already financially hard-pressed to match the level of external support required of schools.

Our findings relating to school socio-economic mix confirm for the very start of school experience what others have recently documented for later school years. It is the low decile schools which stand in most need of external support if they are to be able to close the gap between the performances of their students, and other students.

Prior family experiences and resource levels also had an impact on children's competencies—and this was sometimes greater than the impact of current family resources and home experiences. Family income levels at age 5 had a greater impact than family income levels at age 6. Family computer ownership at age 5 showed many associations with children's competency levels a year later, but current family computer ownership did not. Prior reading and mathematical activities showed a greater level of association with children's current competency levels than current activity, but prior writing activities did not show this association.

Children's current home activities also mattered, particularly those that did not focus on practising skills or knowledge in an isolated way, but instead put these to work in practical ways or in social contexts. The activities which do this appear to have wider benefits for children, enhancing their competency levels generally, even if some of the benefits—for example in Social Skills and Perseverance—take time to show up. There are implications here for the support children and parents can be given at home.

Family income levels continued to be a dominant contributor to children's competency levels, and to underlie some of the differences which initially appeared in association with family type, ethnicity, and source of family income. Thus we can say that such differences are only apparent, and it is the level of family income which really matters.

Low levels of family income while children are preschoolers appear to have enduring as well as current impacts on children's competency levels. There are implications here for social policy, in terms of the importance of adequate incomes, through the availability to families with young children of sufficiently well-paid employment, or in its absence, sufficient government support, as well as adequate and affordable housing.

A fundamental question is also raised by the range in family incomes, against a background of widening income inequality in New Zealand. The low income families in the Competent Children project had available to them a third to a quarter of the incomes available to families in the highest income bracket. They were also more likely to be paying half or more of their income for housing. If such gaps in income remain, or widen still further, it will be difficult to close the associated gaps which are evident in children's competency levels even from an early age. Thus children from low income homes will not approach later life on a "level playing field", but will find their opportunities more circumscribed than those of others. Society will also draw on a narrower range of abilities and talents, because of the constraints on the development of this group of children.

OUTLINE OF THE COMPETENT CHILDREN PROJECT

Figure 1

Competent Children Project Outline

Year	Main Study	Survey	Schema Study
1992	Pilot Study–5-years old 19 children 6 ECSs (1 of each of ECS types in study, 2 playcentres (rural/urban)) 7 research instruments Survey to establish extent of non ECS usage in Porirua Basin		
1993–94	PHASE I Fieldwork–near 5-year-olds 307 children and parents 87 ECSs 6 Instruments Reports: Competency, quality frequencies reported to Ministry of Education; study participants (seminars and posted summary) Pilot study–6-year olds 16 children 10 schools	Fieldwork–near 5-year-olds 767 children 56 ECSs 2 instruments (parent, ECS) Initial ECS usage, school choice, and tertiary saving reported to Ministry of Education	Fieldwork–near 5-year-olds 18 children (in main study also) 4 ECSs 6 instruments (as in main study) and Samples and Records (child, parent, ECS)
1995–96	PHASE II Fieldwork–6-year-olds 298 children 121 schools 330 teachers 3 instruments Conference papers: – Early Childhood Education Quality, Family Resources, and Children's Competencies at age 5. – Early Childhood Education Services: What Works for Parents?	Brief postal contract with parent/caregivers. Consents renewed	Book: *Thinking Children*
1996	Report: Competent Children at 5 Handbook for parents and practitioners: Five Years Old and Competent. Conference paper: Between 5&6: What happens to the impact of Early Childhood Education Quality and Experience on Children's Competencies?		
1996–97	PHASE III Fieldwork–8-year-olds 523 children 168 schools 547 teachers 3 instruments	⇦ 242 children incorporated into main study Report: Spreading Their Wings	
1998	Reports: Competent Children at 6 Competent Children at 8		

If funding continues

1998–99	Phase IV	–	10-year-olds
2000–1	Phase V	–	12-year-olds
2002–3	Phase VI	–	14-year-olds
2004–5	Phase VII	–	16-year-olds

PART 1

CHAPTER 1

INTRODUCTION

Background to the Study

The Competent Children project[1] is designed to focus on the contributions which early childhood education, school resources, family resources, and children's activities make to the development of New Zealand children's competencies. We use the word competency to refer to combinations of knowledge, skill, and, sometimes, attitude, which can be seen at work in everyday practice, or gauged through specific tasks.

We explore 10 realms of competency in this study. They cover 6 "being" competencies:

Communication, Curiosity,[2] Perseverance, Social Skills with Peers, Social Skills with Adults, Individual Responsibility[3]

and 4 "doing" competencies:

Literacy, Mathematics, Logical Problem-Solving, Motor Skills.

This set of competencies by no means exhausts the spectrum of capabilities which are valued in New Zealand.[4] It does provide a reasonably comprehensive grasp of competencies which have been linked with successful learning (in a society which is putting more emphasis than previously on the role of education and learning in employment), and with satisfying social and economic participation.

Having such a range of competencies also allows us to see how usual it is for one individual to be competent in all of them, and, as we follow the study children over the years, to see whether patterns of achievement and prowess over time are different for different competencies.

Our data-gathering began in 1993–1994, when the 307 children then in the study were almost 5 years old, and were still attending early childhood education. The children's teachers rated them for the "being" competencies, which required a more extensive knowledge of the child than a researcher could gain quickly. The children themselves carried out tasks related to the "doing" competencies. We also gathered material about the quality of the early childhood education services attended by the children, and observed their activities there. We spoke with parents about the family, the child's activities at home, their history of early childhood education from birth,

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1 The project has been funded by the Ministry of Education, and NZCER.
Figure 1 opposite sets out the work undertaken so far, and the resulting reports. By the end of 1997, data had been collected for Phase III, when the children turned 8, and analysis had begun. We expect the draft report on Phase III to be completed by July 1998.

2 In the first report we used the term Inquisitiveness for this competency.

3 In the first report we used the term Independence. We made the change because Independence suggests some aspects which are not covered by the items included in our measure of this competency.

4 Two other aspects have since been suggested to us by participants in the study: risk-taking, and security.

the parents' perceptions of their child's first and final early childhood education services, and their choice of school for the child.

We reported the results of this first phase in *Competent Children at 5: Families and Early Education*, published in 1996. We found that the length and quality of early childhood education did make a positive difference in relation to children's competency levels.

Family resources and children's home activities were also important. Level of family income was particularly important. It overrode several of the associations initially found between children's competencies and a number of other factors, such as ethnicity and family type.

The Children at Age 6

We returned to the children in 1995–1996, a year after they started school, when they were aged 6 or nearly 6. Of the 307 children who took part in the first phase, only 8 (3 percent) did not take part in the second phase. Sadly, one child died just after turning 5. Four parents declined consent, and 4 could not be located. The final sample comprised 298 children (and 297 parents, because 1 parent became unable, for personal reasons, to complete the parent interview).[5]

The sample children attended 121 schools. Close to half (44 percent) attended the same school as at least one other child who had attended their final early childhood education centre. Three families moved overseas, 2 to Australia and 1 to the USA. Five families left the Wellington region, 2 moving to Auckland, and 1 each to North Auckland, Te Kuiti and Dunedin.

Parents told us about their child's transition to school, parents' satisfaction with initial school progress, the child's home activities, family activities and resources, and parent's proposed choice of secondary school.[6] Teachers gave us information relating to class size, each child's overall progress, and the teacher's contact with the child's parents.

For this study, teachers also summed up the socio-economic profile of the community served by their school. Their summaries corresponded fairly well to the Ministry of Education's decile rating.[7] All the children attending schools described as serving a predominantly low socio-economic community were in decile 1–4 schools; the children at schools serving low to middle socio-economic communities were mainly (77 percent) in decile 3–6 schools; the children at schools serving middle class communities were mainly (85 percent) in decile 7–10 schools; and the children at schools serving a wide range of socio-economic levels were mainly (77 percent) in decile 3–8 schools.

Measuring the Competencies

As at age 5, we asked the children's classroom teachers to rate them on the "being" competencies. We asked the children to undertake a set of tasks related to the "doing" competencies of Literacy, Mathematics, Logical Problem-Solving, and Motor Skills.

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5 Of those who withdrew, 3 children had attended family daycare, 2 the same childcare centre, and 2 each a private pre-school or kindergarten. The child who died had attended a childcare centre. All but 2 of the families were Pakeha/European. Three of the families came from the lowest income bracket, 1 from the mid to high income bracket, and 1 from the highest income bracket. Family income data was not given by the remaining 3 families.

6 The 3 research instruments used can be found in Appendix 2.

7 The Ministry of Education uses school decile as an indicator of the socio-economic composition of state and integrated school catchment areas. The decile rating is based on census data for households with school-aged children, together with ethnic data taken from the school's roll returns. Each decile includes 10 percent of the state schools. Private schools are not rated. Deciles run from 1 (lowest socio-economic catchment area) to 10 (highest socio-economic catchment area). The rating is used to allocate a sliding scale of additional funding for schools in deciles 1–9.

When the children were 5, we had found that very few ready-made tests, recently standardised for New Zealand, were available for that age group. There were also few available tests to assess the full set of competencies used here, particularly within the time-cost constraints of research. So we had to develop some assessments from scratch, and modify others through trialing existing tasks. (For an account of our search for appropriate and meaningful measure of competencies to use at near age 5, see *Competent Children at 5—Technical Appendices.)*

Children's development in their early years is well known for its plasticity. When we returned to the children at age 6, we confronted a difficulty which besets many attempts to compare children's progress over time. Some assessments can be made on the same basis and in the same form as at an earlier age. But others cannot, because the tasks are no longer appropriate.

We were able to keep consistency between the assessments done at age 5 and age 6 for all but one of our competencies, Literacy. However, we did need to modify or extend some of the measures for the other competencies.

The "Being" Competencies

These 6 competencies are the ones most appropriately assessed over a period of time, by adults close to the children. The teachers had known the individual children for an average of 6 months. The shortest period was 1 month (5 percent), and the longest 12–14 months (16 percent). The average age of the children when their teachers were interviewed was 6 years, 1 month.

For these 6 "being" competencies, teachers rated children by matching 3 or 4 statements related to each competency area to the child, using a 5 point scale which we then converted to a numerical rating: always (4); often (3); sometimes (2); hardly ever (1); never (0).[8] Most of the measures[9] used to get teacher ratings of the children's Communication, Curiosity, Perseverance, and Social Skills competencies at age 5 were used again at age 6, with only a few adaptations to suit the shift from early childhood education to school, and the change in what is expected of children at age 6. For example, one of the three questions on Individual Responsibility at age 5 asked about dressing, washing and going to the toilet. At age 6 this questions asked about going to the toilet, and "keeping track of her/his things".

The "Doing" Competencies

Literacy

For age 5, we had used Literacy tasks which focused on emerging reading—knowledge of letters, words, and how to read—rather than reading itself. Most children start reading in their first year at school.

In our pilot, we gathered the results for each child of the "6 year net" (as Clay's Diagnostic Survey is commonly known). However, for various reasons, we decided that it was not a suitable measure for our study.[10]

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[8] In our first report, the numerical rating we used was from 5 to 1.

[9] The measures used can be found in Appendix 2, in the "Adult Perceptions of Children's Competencies" interview.

[10] The 6 year net has not been normed since 1978. Three of the 6 different measures it includes showed the ceilings were being reached. It is also possible that the results of the text reading task can reflect the text given to the child by the teacher, as much as the child's prior knowledge of the world. What is more, the 6 year net has 6 different measures which cannot be summed into a single measure. Although most schools do carry out this test, not all do it for every child (particularly if the child's reading and writing is regarded as very good), and it would be time-consuming for the researchers to do the whole 6 year net for all the children for whom we had no or incomplete school results. As well, the 6 year net is regarded primarily as a diagnostic assessment for teachers to use in shaping their work with children, rather than a summary assessment of the

We also asked teachers in the pilot for the children's reading book levels. Some schools gave the reading book level; some gave the colour code for the level; and some gave the name of the book most recently read by the child with an accuracy rate of at least 90 percent. This inconsistency signalled problems for our purposes. In addition, reading book levels could reflect teacher judgments (e.g. Glynn et al. 1989 found a sizeable number of children misplaced after they finished Reading Recovery), or teachers' time and availability to check each individual child in their class, rather than a child's actual capability. So we decided not to use reading book level for our Literacy measure. But we did ask teachers for each child's reading book level, so that we could see how the levels related to the measures we used, to teacher assessments of children's overall school progress, and to children's access to Reading Recovery.

We turned instead to the Burt Word Recognition test. It was standardised for New Zealand children aged 6 to 11 in 1980, and had correlations with the widely used PAT tests at the standard 2 level.[11] It could also continue to be used in future phases of the Competent Children project. Another task which could provide a good indicator of Literacy was Tunmer's Invented Spelling measure. It assesses children's phonological (spelling) awareness, and this has been found to be a good predictor of children's initial reading progress (Snider 1997, Stuart 1995).

We used both the Burt Word Recognition test and the Invented Spelling measure to measure Literacy. But we found that the children's scores on these two measures were only reasonably rather than strongly related to each other ($r=0.64$), and the two sets of scores had quite different distributions. So we did not try to amalgamate them.

Mathematics

All our 5 year old items remained in the tasks set for 6 year olds, with extensions to the tasks of numeral identification, rote counting, and sequence forwards, and the addition of 5 mental computation items.[12]

Logical Problem-Solving

For age 5, we assessed Logical Problem-Solving through a selection of items from the Ravens' Coloured Progressive Matrices. Through trials with New Zealand children, we were able to choose items which gave good discrimination between children (high scorers overall were correct on the item, and low scorers were incorrect), and high correlation between scores on different items (those who scored highly on one item were likely to score highly on others too).

However, we found that scores at age 5 tended to be high across the board (a "ceiling" effect). To counter this at age 6, 16 additional items were trialed with 20 6-year-olds. We chose these items on the basis of their high difficulty (less than half the children got them correct), and their good discrimination. We decided to include 6 of these items, but this gave us a total of 17, which was too many to include in the children's interview. So we removed 3 of the original items, all of low difficulty (over 80 percent of the children got them correct), giving a total of 14 items.

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kind which is amenable to the statistical analysis we would carry out.

[11] These correlations were $r=0.71$ for the PAT Reading Comprehension test and $r=0.79$ for the Reading Vocabulary Test (Gilmore, Croft and Reid, 1981).

[12] For age 5, the Mathematics tasks were derived from the SENS instrument designed by Jenny Young-Loveridge (1991), and tasks used in the Ministry of Education's evaluation of the Beginning School Mathematics (BSM) programme (Visser and Bennie 1996), some of which extended SENS. For age 6, we were fortunate to be able to draw again from the BSM evaluation. As at age 5, our selection of tasks was guided by Heleen Visser's advice on which items showed greatest differentiation, and which were correlated with performance on other items in the evaluation test.

Fine Motor Skills

We assessed both Fine and Gross Motor Skills at age 5. For age 6, we decided to continue only two of the four fine motor skills tasks, and none of the gross motor skills tasks[13]. We were concerned not to make our interview with the children so long that they lost interest of concentration on the tasks. We also concluded that Fine Motor Skills were more important in relation to continued learning and much paid work.

The two Fine Motor Skills tasks we dropped both showed a "ceiling" effect, with 60–64 percent achieving the maximum score at age 5, indicating that there would be little differentiation among children at age 6. By contrast, few of the children scored the maximum on tracing and scissor use, the two tasks we retained.

Analysing the Data

In this report we provide a description of the children and their experiences, and the main results of our statistical analysis. We have endeavoured to report our analysis in non-technical language, so that these results will be accessible to a wide audience. The full detail of our analysis is contained in *Competent Children at 6—Technical Appendices* (NZCER 1998). However, some technical language is necessary. We outline below the main forms of analysis which are used in this report, and our approach to the data.

Analysing the Competency Scores

In this report, the scores for the tasks or ratings making up each competency measure have been added and converted to a percentage. The *median* gives the "half-way" score: half the children scored above this, and half below. *Upper quartile group* refers to the top 25 percent of scores, and *lower quartile group* to the lowest 25 percent of scores.

We then looked at how well individual children's scores on one item within a competency measure matched their score on other items, how well their score on one competency measure matched their scores on other competency measures, and how well their scores at age 5 matched their scores at age 6. We wanted to see whether the relationship between the two scores was a *linear relationship*. Where there is a linear relationship, an increase or decrease in one score would be matched by an increase or decrease in the score being compared with it.

Correlation

Linear relationships are measured by looking at the *correlations* between two variables–in this case, the two scores. The correlations show the spread of scores around the linear relationship between the two scores.

We worked out the correlations by using a measure called the *correlation co-efficient.* This measures the strength of the linear relationship by taking into account the variation **within** each of the two variables being compared, as well as the variation **between** the two variables. This is reported as r. When $r=1$, there is the strongest possible relationship–that is, the two variables match perfectly. When $r=0$, there is no linear relationship between the two variables. A correlation of below about 0.3 suggests that there is almost no match between the variables being compared.

For example, we found a correlation of $r=0.69$ between children's Mathematics scores at age 5 and at age 6. This is a reasonably high correlation. By contrast, the correlation between their scores for Communication at age 5 and age 6 was only $r=0.33$.

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[13] The measures used to assess children's competencies in Literacy, Mathematics, Logical Problem-Solving, and Fine Motor Skills can be found in Appendix 2, "Child's Interview and Tasks".

Analysing Factors Relating to Children's Experiences

We used simple *cross-tabulation* to see what associations exist between different aspects of children's experience–for example, between school type and parental satisfaction with their child's initial school progress. Cross-tabulation tells us whether the proportions of the groups of parents whose children attended different types of school expressing satisfaction, qualified satisfaction, or dissatisfaction are the same.

We found that 25 percent of the parents of children attending private schools expressed dissatisfaction, compared with only 6 percent of the parents of children attending state or integrated schools. The difference between these proportions suggested that parental dissatisfaction was more strongly associated with having a child at a private school.

Probability

We then tested this association, and all the others we found, to see how strong they really were. To do this, we measured how likely or probable it was that each association was occurring merely by chance. This is reported as p.

We found that the probability of the association between parental dissatisfaction and having a child at a private school occurring by chance was only 5 in 1000, or $p=0.005$. So this association was a strong one.

In our description of children's experiences, we report those associations which have a probability of occurring by chance of no more than 1 in 20 ($p=0.05$). We also report some of the associations with a slightly higher probability of occurring by chance, where these associations are consistent with other findings.

Analysing Associations Between Competency Scores and Factors Relating to the Children's Experiences at Home, School, and Early Childhood Education

One-Factor Modelling

We tested any differences we found in the average scores of groups of children with different factors, or different amounts of a factor such as income, in their lives. This enabled us to see whether the differences could be partly due to the specific factor we were looking at. This is called *one-factor modelling*. It shows how probable it is that the association seen between differences in scores and differences in that factor has occurred merely by chance.

For example, Table 1 below shows that 6 year old children who read library books have higher average scores on all competencies than 6 year old children who do not. For 7 of the 10 competencies, it is extremely unlikely or improbable that the association between reading library books and higher scores has occurred merely by chance.

The association between reading library books and higher scores on Curiosity and Social Skills with Peers has a higher probability of occurring by chance, but it is still only 1 in 100 ($p=0.01$). But the association between reading library books and higher scores on Logical Problem-Solving has a 6 in 100 probability of occurring by chance ($p=0.062$).

In our analysis, only those association which have a probability of occurring by chance of less than 1 in 100 are reported as *significant*. Where the probability of the associations occurring by chance is between 1 and 5 in 100, they are reported as *indicative*. However, in many cases we are confident that they would be significant if our sample had been larger, especially where other evidence points to the same thing.

Table 1

Reading Library Books and Children's Competencies

Competency	Reads library books (n=235) %	Does not read library books (n=62) %	Probability
Curiosity	**64.4**	*51.1*	0.011
Perseverance	**67.9**	*53.9*	0.00000002
Independence	**81.8**	*70.4*	0.0000008
Social Skills with Peers	**66.4**	*61.7*	0.011
Social Skills with Adults	**76.2**	*64.8*	0.000001
Communication	**74.2**	*62.9*	0.00000009
Mathematics	**78.4**	*70.0*	0.0002
Fine Motor Skills	**53.1**	*41.1*	0.00005
Word Recognition	**20.3**	*12.0*	0.00000002
Invented Spelling	**61.8**	*44.9*	0.00002
Logical Problem-Solving	**55.5**	*51.0*	0.062

The **highest** scores for each competency are in **bold type**, the *lowest* in *italics.*

Two-Factor Modelling

Where we found that these associations have an indicative or significant level of probability, we explored further the relationship between the competency and the factor in the child's life by introducing another factor into the model.This was usually family income. We had found in our first report that family income showed powerful associations with a broad range of competencies, and that a number of the apparent associations shown by one-factor modelling were no longer there after we allowed for family income. In other words, family income could be considered to be the main factor behind the apparent differences.

In the example above, we found that library book reading continued to make a difference to children's scores after we allowed for differences in family income. However, when we included family income into our modelling of the differences in scores related to differences in family type, these differences disppeared. In this case, the two-factor modelling showed that family income, not family type, was the factor which was in fact associated with the differences in scores.

CHAPTER 2

DESCRIBING THE CHILDREN'S COMPETENCIES

Individual Competency Levels

In this section, we look at the scores for each of the competencies in turn. The results show what could be expected of New Zealand 6 year olds. However, it should be noted that our sample has more children from high income homes and fewer from very low income homes than the country as a whole. As we found family income to be strongly related to children's competency levels at age 5, our sample's competency levels are likely to represent a higher level of performance than would be found nationwide.

We also compare scores at age 5 and age 6, explore some of the reasons for the different patterns of progress in different competencies, and look at how well the 5 year old scores on a particular competency predicted the 6 year old scores on the same competency, and on other competencies.

The "Being" Competencies

Communication, Curiosity, Perseverance,
Social Skills with Adults, Social Skills with Peers, Individual Responsibility

Scores on these 6 competencies were closer to each other than they were to the scores for Literacy, Mathematics, and Logical Problem-Solving.

We look first at scores on the individual items used to measure each competency. Here we focus mainly on those items where more children scored at the top end of the scale, and those items where more children scored at the lowest end of the scale. We then compare the children's overall performance at age 6 with their performance at age 5.

Finally we look at how well a child's score on 1 item matched their score on another item. This is called the correlation. If each child in the study had the same individual score on each of the 2 items being compared, that would give a correlation of 1 (written as $r=1$). This would be the strongest possible correlation. A correlation of below 0.3 means that there is almost no match in the scores on the 2 items being compared.

Communication

Most teachers thought the children in their class understood the stories they read to them, and most children's speech was easily understood by the teacher.

Scores were lowest for the item "experiments with language", and low for the items "asks for something not understood to be repeated or explained again", and "varies speech according to the situation". At age 6 fewer children received the highest ratings for 6 of the 9 items than at age 5. The scores which remained unchanged between the two ages were for the items: "follows a conversation and remains on the topic", "understands a story read to the class", and "easily understood".

The overall median rating for Communication was 72 percent at age 6, down a little from 78 percent at age 5.

The range of matches or correlations between the items making up the Communication

measure at age 6 (r=0.18 to r=0.54, with most around r=0.45) was similar to the range at age 5. However, the matches between experimenting with language and the other items were generally stronger at age 6.

Table 2
Communication

(N = 298) Rating → Item ↓	4 %	3 %	2 %	1 %	0 %	Mean rating for item
Receptive						
Able to remember and carry out simple instruction heard once	31	42	22	5	0	2.97
Asks for something not understood to be repeated or explained again	17	36	29	14	3	2.50
Follows conversation and stays on same topic	31	45	20	3	0	3.02
Understands story read to class	56	36	7	0	0	3.47
Can pass on simple messages	27	43	22	7	1	2.87
Expressive						
Easily understood	54	32	10	3	0	3.36
Varies speech depending on situation	16	41	28	14	1	2.56
Experiments with language	7	32	40	18	2	2.24
Gives clear explanations	24	45	23	7	1	2.84

Curiosity

The item on which children scored most highly was "likes to play with things that fit together". The two items on which children were least likely to score well were "explores and asks about people, animals, plants", and "asks a lot of questions and/or likes to take things apart".

The overall median score on Curiosity at age 6 was 63 percent, compared with 69 percent at age 5. Only 1 item, "explores and asks about people, animals, plants", showed much the same pattern of scores at both ages.

Looking at scores of individual children on the various items measuring Curiosity, we found a high match between only two items:"asks a lot of questions", and "explores and asks about people, animals, plants" (correlation r=0.75, with the other correlations between the 4 items running from r=0.29 to r=0.55). The item that had the lowest score match with other items was "likes to play with things that fit together". "Getting excited about new experiences" had a fair but not high score match (r=0.55 and r=0.54) with other items.

This pattern was much the same as that at age 5. It suggests that one cannot assume that a child who likes to play with puzzles and things that fit together is curious about the world, or enjoys new experiences. A child who shows curiosity in one situation, however, is likely to show it in other settings, and to be alert to new experiences.

Table 3
Curiosity

(N = 298) Rating → Item ↓	4 %	3 %	2 %	1 %	0 %	Mean rating for item
Asks a lot of questions and/or likes to take things apart	17	26	42	14	1	2.43
Explores and asks about people, animals, plants	11	27	39	20	3	2.21
Likes to play with things that fit together	15	50	32	3	0	2.77
Gets excited about new experiences	18	37	37	7	0	2.65

Perseverance

The one item which stands out here is "good concentration span on things of interest". Most children achieved a score of 4 or 3 for this item.

The overall median rating for the 69 percent, the same as at age 5. However, there were some changes on individual items. At age 6, compared with age 5, more children scored low on "good concentration span on things of interest", and "keeps trying till resolves a problem with a puzzle or toy", and fewer children scored low on "makes an effort, even if unconfident."

The matches of scores between items were very similar (all between r=0.48 and r=0.59). But between age 5 and age 6 more individual children scored similarly on both "good concentration span on things of interest" and "makes effort, even if unconfident" (the correlation moved from r=0.31 to r=0.48). Perhaps this increase reflects the more structured environment of school classrooms in comparison to early childhood education centres. The reasonable match of scores between "keeps trying till resolves problems with puzzle/toy" and "persists in problem-solving when creating" suggests that perseverance in problem-solving is a competence which is not confined to one domain.

Table 4

Perseverance

(N = 298) Rating → Item ↓	4 %	3 %	2 %	1 %	0 %	Mean rating for item
Keeps trying till resolves problem with puzzle/toy	9	50	26	14	1	2.50
Persists in problem-solving when creating	11	36	39	10	3	2.41
Good concentration span on things of interest	37	42	15	6	0	3.09
Makes effort, even if unconfident	9	35	42	12	2	2.35

Social Skills with Adults

Again, one item stands out: "accepts adult explanations about acceptable behaviour". Most children scored highly on this at age 6, and more highly than they did at age 5. But at age 6, fewer children than at age 5 scored highly on the other 2 items in this measure. The overall median was 75 percent for both years.

The correlations ranged from r=0.21 to r=0.54. The highest was between "holds confident conversations with adults", and "asks for help and information when needed." The item "accepts adult explanations about acceptable behaviour" had the lowest correlation, suggesting little relationship between skills requiring some child initiative in their communication with adults, and those requiring receptivity or obedience.

As with scores on the Individual Responsibility measure, there is a downward shift at the upper end of the scale. This may reflect adjustment to the school environment, which is more structured, and also more demanding, in terms of increased numbers of routines. It may also reflect differences between primary and early childhood education teachers in the criteria they use to assess Individual Responsibility and Social Skills with Adults. Or it could reflect the fact that the children's primary teachers had known them for a shorter time than their early childhood education teachers (an average of 6 months, compared with 2 years). However, primary teachers generally saw the children for a longer time each day than their early childhood education teachers. But as the next set of measures shows, there was little difference between primary and early childhood teachers in their overall rating of the study children's Social Skills with their Peers.

Table 5

Social Skills with Adults

(N =298) Rating → Item ↓	4 %	3 %	2 %	1 %	0 %	Mean rating for item
Holds confident conversations with adults	24	38	27	9	2	2.73
Accepts adult explanations about acceptable behaviour	46	40	12	1	0	3.31
Asks for help and/or information when needed	24	43	26	7	1	2.82

Table 6

Social Skills with Peers

(N =298) Rating → Item ↓	4 %	3 %	2 %	1 %	0 %	Mean rating for item
Takes turns, shares, understands rules and fair play	29	47	21	3	0	3.01
Can sort out differences with other children	21	47	26	4	0	2.85
Can see another point of view	5	33	44	13	2	2.21

Social Skills with Peers

There were fewer high ratings for Social Skills with Peers than for Social Skills with Adults, or Individual Responsibility. The item that stands out is "can see another child's point of view". This was still something that very few children did always at age 6, and only a third were able to do often.

There were reasonable matches between scores on "can see another point of view" and the other 2 items ($r=0.57$ and $r=0.53$), but the highest match was between taking turns and being able to sort out differences with other children ($r=0.73$). This last correlation is higher than that found at age 5 ($r=0.57$). It may reflect greater emphasis on children working in groups in the primary school.

Our measure of Social Skills with Peers combined teacher ratings with children's responses to a social problem-solving task. The children were shown two cut-outs of identical children of the same gender and ethnicity as themselves, and a picture of a bicycle. They were told that one child *has had the bicycle for a long time. Now the other child wants to play with it. What can the first child say or do so that s/he can have a turn with the bicycle?* After they had given an answer to this question, they were asked what the child could say or do if the first response was unsuccessful. In devising the overall measure of Social Skills with Peers, we gave equal weights to each of the 3 items rated by teachers, and to each of the 2 stages of the social problem solving task given to the children.

In their initial response, most children (84 percent) were polite, giving answers such as "say please", or "I'd like a turn", compared with 77 percent at age 5. Another 5 percent would ask an adult to help them, twice as many as at age 5. At age 6, only 1 percent had no idea how to respond (6 percent at age 5), and 3 percent would now negotiate (1 percent at age 5). Only 1 percent of the children at age 6 would respond with verbal or physical aggression, and 2 percent with passivity—much the same as at age 5. Finding something else to do also showed a similar pattern at both ages (2 percent).

Most children do not try the same response twice. Only 23 percent of the children would keep making a social request if their first overture did not work. This is much the same as at age 5. The proportions of children who would find something else to do (7 percent), be passive (6 percent), or aggressive (5 percent) were also much the same at both ages.

What changed between age 5 and age 6 in the children's responses if their first action did not work was the reliance on adults. This was 36 percent at age 6, compared with 20 percent at age

5. The proportion of children who could not think what they would do halved (from 24 percent to 12 percent), and there was an increase in negotiation at age 6 for the second effort (8 percent).

Scores for the social problem-solving task showed very little correlation with teachers' ratings of general social skills with peers.

Individual Responsibility

One item stands out in our measures of Individual Responsibility: more children scored highly for "individual responsibility in keeping track of her/his things, going to toilet, etc" than for the other 2 items. This was also the highest scoring item at age 5, when more children scored highly than at age 6. Yet the overall median scores were much the same for both ages.

Matches between items were higher at age 6 than at age 5 (r=0.24-0.56 compared with r=0.16–0.24). The highest match (r=0.56) was between "individual responsibility in keeping track of his or her things", and "follows class routines without having to be reminded". But these two items had little correlation with children's expression of their own needs and feelings.

Table 7

Individual Responsibility

(N =298) Rating → Item ↓	4 %	3 %	2 %	1 %	0 %	Mean rating for item
Individual responsibility in keeping track of her/his things, going to toilet, etc.	54	32	11	2	1	3.37
Clearly conveys needs and feelings	36	38	20	6	0	3.04
Follows class routines without having to be reminded	39	39	17	5	0	3.18

Changes in the "Being" Competencies between Age 5 and Age 6

Our measures for these "being" competencies were the same at age 5 and age 6, except that 3 items were adapted to take account of children's development. None of the median scores on these competency measures increased between age 5 and age 6. Three remained the same, and three shifted slightly downwards.

Looking at the median only gives a slightly more favourable picture, since fewer children received the highest scores at age 6 for 16 of the 26 items used for these competencies, and only 1 item showed more children being given the highest score at age 6 than at age 5.

This lack of progress between ages 5 and 6 contrasts with the marked progress shown in the next section for the three "doing" competency measures which stayed consistent between age 5 and age 6. Why are the two patterns so different?

The first possible reason is that these items are rated by teachers, and there are some differences between early childhood educators' experience and primary teachers' experience which may explain why primary teachers tended to give lower ratings. For example:

- The primary teachers in this study had less experience of the study children—an average of 6 months, compared with 2 years for the early childhood educators.
- Primary teachers have a wider knowledge of children of the same age and older to draw on. Early childhood educators draw on a more limited range of children, and 4 year olds are the oldest children they work with.
- Primary teachers have had more experience of assessing children, and their training has been more uniform than that of early childhood educators. However, their training to date would not cover formal assessment of communication and social skills.[14]

[14] Burgon and Thompson (1997).

Another possible reason is that the transition to school itself makes demands on the children's competencies. A certain level of competence enables a successful adjustment to the new environment, with its new activities, responsibilities, and usually greater number of adults and other children. But the effort of adjustment may also lead to the "being" competency levels remaining much the same for the first year or two of schooling.

We will be able to test these interpretations as we analyse the results of our next phase, when the children are 8 years old. If there is no decline in overall scores, or some improvement, then it seems likely that the lack of change in the first year is mainly due to differences between early childhood educators and primary teachers, and/or the effort of adjusting to a new environment.

On the other hand, lack of improvement or decline in scores between the ages of 6 and 8 may mean that we cannot expect continued improvement in overall levels of these "being" competencies as children grow older and have wider experiences. However, as the results of our analysis of individual changes between ages 5 and 6 suggest (see p. 17), competency levels are not fixed, or always generalisable. They reflect each individual child's environment and comfort in that environment.

The "Doing" Competencies

Mathematics, Literacy, Logical Problem-Solving, Fine Motor Skills

These 4 "doing" competencies were assessed by tasks carried out by the study children during the research interview. The average age when this interview took place was 6 years 1 month, the same as the age for the teacher interview, with the same spread of ages, from one child aged 5 years 10 months to one child aged 6 years 8 months.

Mathematics

Table 7 shows achievements on the mathematics tasks at both age 5 and age 6, and compares these with the results found in the Ministry of Education's Beginning School Mathematics (BSM) evaluation. Rapid progress in mathematics seems to be a hallmark of children's first year at school. The median score on Mathematics at age 5 was 51 percent, whereas at age 6 it was 79 percent. Comparing our study children with the BSM study children, who were on average 6 months older, we can see continued progress with numbers and mental computation (Visser and Bennie,1996).

At age 6, just over half the children could rote count past 100. But only 15 percent could identify all the numerals (which included two numbers above 100). The match between scores on these two items was reasonable, but not strong ($r=0.63$). Only one other pair of items achieved a similar level of correlation. The overall level of correlations between items was fairly low (range $r=0.07$–0.63, with a median of $r=0.30$). So it would be unwise to try to assess children's overall mathematical performance on one or two items only, such as rote counting.

Table 8

Children's Performance on Number Tasks

	Competent Children 1993–94 Wellington Region 4.10–5.2 years mode 4.11 years (N = 306) %	Competent Children 1994–95 Wellington Region 5.10–6.8 years mode 6.1 years (N = 298) %	Ministry of Education 1993 New Zealand 6.7–6.8 years (N = 155) %
Forming Sets			
2	97	99	100
5	82	98	99
9	61	89	96
13	40	82	91
Numeral Identification			
2	81	99	100
5	77	99	100
8	63	97	97
9	53	93	97
14	33	75	90
27	11	60	82
84	9	60	81
125	n/a	21	34
346	n/a	17	34
Pattern (Dice) Recognition			
2	88	98	99
6	44	87	91
5	49	88	94
Rote Counting			
To at least 10	87	93	100
To at least 20	39	84	99
To at least 30	19	82	88
To at least 50	n/a	81	n/a
To at least 100	n/a	55	62
Sequence Forwards			
Number after 5	69	96	99
Number after 16	33	83	91
Number after 29	11	56	70
Number after 84	n/a	59	74
Enumeration			
9 objects	69	88	87
14 objects	39	78	79
Shape Sorting			
Hexagons	41	84	77
Rectangles/oblongs	48	71	90
Triangles	39	61	51
Linear Patterning			
Correct, no prompting	27	79	88
Mental Computation			
2–1	n/a	94	91
2+3		72	76
7–3		44	59
6+8		15	23
7+9		17	19

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Literacy

The mean score on the Burt Word Recognition test was 20.31 out of 110.This is close to the results of the 1980 Burt Word Recognition test revision for New Zealand,[15] when the mean score for the group aged between 6 years and 6 years 5 months was 21.33.

To use the results of the Burt Word Recognition test in our analysis, we converted the scores to a percentage. This gave a highest score of 61 percentage points, and a median of 17.9 percentage points.

The Invented Spelling test had a median score of 65 percentage points. The correlation between these two literacy measures was reasonable (r=0.64).

Logical Problem-Solving

The median score for Logical Problem-Solving at age 6 was 57 percentage points compared with 64 percentage points at age 5. The upper quartile at age 6 began at 64 percentage points, compared with 82 percentage points at age 5. The decreases here are likely to result from the changes made to the test items to avoid the low ceiling—that is, the high proportion of children scoring highly—which showed up at age 5.

Fine Motor Skills

School experiences also resulted in progress for the children on Fine Motor Skills. The average score on the tracing task almost doubled. Accurate use of scissors was still eluding many children at age 6, though the proportion of children achieving the maximum score was higher than at age 5. The same researcher did the scoring on this task for both ages.

Table 9
Fine Motor Skills

Fine Motor Skills items	Mean score for each item		% at max. score of 4	
	5 years (n=306)	6 years (N=298)	5 years	6 years
Tracing (square and triangle)	1.3	2.5	1	4
Scissor use	0.6	0.8	0.3	14

Relationships between Competency Scores at Age 6

Can you predict a child's likely score on one competency measure from their score on another at the same age? With one or two exceptions, the answer is no.

Communication scores had the highest correlation with scores on the other competency measures. The correlations between scores on the different competencies varied from significant between Communication and Social Skills with Adults (r=0.73) to very low between Fine Motor Skills and Social Skills with Adults (r=0.10). The Fine Motor Skills measure had the lowest correlations with any other competency measure (none higher than r=0.24).

The correlations between Mathematics and Literacy were not high (between r=0.59 and r=0.61). There was little correlation between these "doing" competencies and the "being" competencies, apart from Communication and Perseverance. (Our full set of correlations between

15. The revision was done on 200 children for each half-year age level, at each class level from J2 to Form 2, at a representative sample of schools.

the competency measures is given in Table 1, Appendix 1).

We undertook two other analyses of the relationships between the competencies.[16] Both gave similar results.[17] They showed three major groupings, with Curiosity somewhat out on its own:

- Communication, Perseverance, and Social Skills
- Mathematics and Literacy
- Fine Motor Skills and Logical Problem-Solving.

However, the combinations do not explain all the variation between the scores on different competencies for the same child. This indicates that each competency measure is making its own contribution to the variation which exists between individual children. You cannot reduce any one measure to another.

Individual Changes in Scores between Age 5 and Age 6

How did individual children's scores change between age 5 and age 6? Can you predict a child's score at age 6 from the score they received at age 5? Table 10 shows the correlations between individual scores on the "being" competencies. They are all similar, and all rather low. In other words, an individual child's score on each competency at age 5 was not a solid guide to their score on that competency at age 6. But there was more consistency between scores on Communication, Curiosity, and Perseverance than there was for scores on the social skills.

Table 10

Correlations between Children's "Being" Competency Scores at Age 5 and Age 6

n=298	Correlation between Scores at age 5 & age 6
Communication	0.33
Curiosity	0.31
Perseverance	0.26
Social Skills with Peers	0.25
Social Skills with Adults	0.22
Individual Responsibility	0.13

As the next table shows, there was more consistency between age 5 and age 6 for scores on the "doing" competencies than for scores on the "being" competencies. Mathematics showed by far the greatest consistency between age 5 and age 6.

[16] We did a factor analysis, and also a principal components analysis. This analysis looks at "principal components" which are linear combinations arising from the data, to see how much each component accounts for the overall variance (or spread) of the competencies, and then at how much each individual competency contributes to a principal component.

[17] See Tables 2 and 3 in Appendix 1.

Table 11

Correlations between Children's "Doing" Competency Scores at Age 5 and Age 6

n=298	Correlation between age 5 & age 6 Scores
Mathematics	0.69
Word Recognition (cf. Early Literacy)	0.45
Invented Spelling (cf. Early Literacy)	0.43
Logical Problem Solving	0.37
Fine Motor Skills	0.33

So individual children's levels of scores at age 5 did give some indication of their levels of scores at age 6. But none of the correlations outlined, other than that for Mathematics, suggest that the early score actually *predicts* the later score. This was so even when the measures used remained the same, or substantially the same, at both age 5 and age 6.

It is possible that the same teacher, in the same educational environment, doing the "being" competency ratings for the same child at both ages could bring about a higher "match" between the two scores. However, most New Zealand children change teachers between the ages of 5 and 6. In practice, different schools are also likely to use different measures to assess children at each age, resulting in less consistency than this study could achieve.[18]

Some of the low correlations we found could be due to changes in the competency measures. But most could not. What these low correlations suggest is that even when the same measure is used, it may not be possible to predict with any precision the competency level of a particular child in one educational environment at the age of 6 from their competency level in a different educational environment at the age of 5. This makes sense in the context of research literature showing the plasticity of children's early development, and the differences in assessment results between different classes and schools using the same tools (including seemingly standardised tests).[19]

The generally low level of correlations between scores at age 5 and at age 6 on the same competency suggests that any attempt to estimate the "value added" by school experience by comparing individual children's performance at age 5 and age 6 would prove extremely complex in practice, and would produce unreliable results for all competencies other than, perhaps, Mathematics. Even for Mathematics, where correlations were highest, actual performance at age 6 would still vary from predicted performance at age 5 across a fairly wide range.

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[18] In one recent Australian study (de Lemos 1996), the correlation between a teacher rated checklist at the end of the first year of school and a mathematics test given at the end of the second year at school was r=0.50, compared with r=0.69 for the Mathematics measures in this study. However, the correlation between the reading checklist given at the end of the first year and the word recognition test given at the end of the second year was r=0.59, compared with r=0.45 for our two measures of Early Literacy (age 5) and Word Recognition (age 6). A recent Swedish study, which tested children's mathematics before they started school on a standardised school readiness test, and used another test two years later, found a correlation of r=0.29 (Broberg, Wessels, Lamb, and Hwang 1997).

[19] See, for example, Torrance 1991, Wodtke *et al* 1989.

Movement Between Quartiles From Age 5 to Age 6

We also analysed the movement of children's scores between quartiles after the first year at school. Would a child scoring in the bottom quartile at age 5 stay there at age 6? If the results were independent of those at age 5, then the age 5 result was not a reliable predictor of performance at age 6. Tables 12 and 13 show the proportion of children who stayed in the same quartile at both ages.

Table 12

Correlations between the "Being" Competency Scores at Age 5 and Age 6

n=298	% of children staying in same quartile between age 5 & age 6
Communication	32%**
Curiosity	34%**
Perseverance	31%**
Social Skills with Peers	32%
Social Skills with Adults	33% *
Individual Responsibility	27%

** p=0.002
* p=0.02

Table 13

Correlations between Children's "Doing" Competency Scores at Age 5 and Age 6

n=298	% of children staying in same quartile between 5 & 6
Mathematics	49 (p=0)
Word Recognition (cf. Early Literacy)	37 (p=0)
Invented Spelling (cf. Early Literacy)	31 (p=0)
Logical Problem-Solving	36 (p=0)
Fine Motor Skills	34 (p=0.0004)

The proportions of children staying in the same quartile at both ages were not high. Did this mean that children were equally likely to change quartile, no matter what their original quartile level was? We found that most movement was between quartiles next to each other. Children who were in the top and bottom quartiles at age 5 were more likely to be in the same quartiles at age 6.

Children who were in the bottom quartile at age 5 were very unlikely to be in the top quartile at age 6 for Communication, Curiosity, Perseverance, Social Skills with Adults, Mathematics, and Literacy. Children who were in the top quartile at age 5 were very unlikely to be in the bottom quartile at age 6 for Communication, Perseverance, Social Skills with Adults, Mathematics, Literacy, Logical Problem-Solving, and Fine Motor Skills. Tables 6–12 in Appendix 1 give the details. Here we look in more detail at the progress between ages 5 and 6 for Mathematics and Literacy.

Mathematics

While school experience results in children raising their mathematics scores overall, it appears to make little change in their relative levels of mathematics achievement. Overall, 49 percent of the study children were in the same quartile for Mathematics at age 6 as they were at age 5. This was most true of those in the bottom and top quartiles. None of the children who had been in the lowest quartile at age 5 improved their performance sufficiently over the year to be in the top quartile at age 6. Children who had been in the top and second to top quartiles at age 5 were unlikely to be in the bottom quartile at age 6.

Table 14

Quartile Movements between ages 5 and 6 for Mathematics, expressed as percentages of numbers in each quartile group at age 5

Mathematics percentages of age 5 quartile groups	1st quartile at age 6 percentage		2nd quartile at age 6 percentages		3rd quartile at age 6 percentages		4th quartile at age 6 percentages		percent
	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	
1st quartile at age 5	**63.2**	*(25.3)*	22.4	*(24.9)*	14.5	*(24.9)*	0.0	*(24.9)*	100
2nd quartile at age 5	26.0	*(25.3)*	**41.1**	*(24.9)*	21.9	*(24.9)*	11.0	*(24.9)*	100
3rd quartile at age 5	8.1	*(25.3)*	25.7	*(24.9)*	**35.1**	*(24.9)*	31.1	*(24.9)*	100
4th quartile at age 5	2.7	*(25.3)*	10.8	*(24.9)*	28.4	*(24.9)*	**58.1**	*(24.9)*	100

Note: "expected" in this table refers to the expected percentage of children in each category if the scores at each age were independent of each other.

These patterns are consistent with the patterns found by Young-Loveridge (1991).[20] She recommended that teachers assess children's understanding about mathematics when they entered school, so that teachers could tailor number activities according to each child's strengths or weaknesses.

The mathematics tasks in the School Entry Assessment kit, introduced in 1997, provide a basis for this kind of assessment. If this leads to teachers tailoring more activities to children's levels at age 5, then we should see a change in the pattern we found. Otherwise, it seems that those children who are performing relatively poorly on Mathematics at age 5 will still be doing so at age 6. During the first year of school, the gaps which were already evident when the children started school will widen, rather than narrow.

Literacy

The children's score at age 5 on Early Literacy was also a good indicator of their likely performance on Literacy at age 6.

For Word Recognition, 37 percent remained in the same quartile at both ages. Very few children from the lowest quartile at age 5 moved to the top 2 quartiles at age 6.

Table 15

Quartile Movements between ages 5 and 6 for Word Recognition, expressed as percentages of numbers in each quartile group at age 5

Word Recognition percentages of age 5 quartile groups	1st quartile at age 6 percentage		2nd quartile at age 6 percentages		3rd quartile at age 6 percentages		4th quartile at age 6 percentages		percent
	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	
1st quartile at age 5	**56.2**	*(26.4)*	27.4	*(25.0)*	13.7	*(24.7)*	2.7	*(24.0)*	100
2nd quartile at age 5	28.4	*(26.4)*	**23.0**	*(25.0)*	25.7	*(24.7)*	23.0	*(24.0)*	100
3rd quartile at age 5	14.7	*(26.4)*	26.7	*(25.0)*	**29.3**	*(24.7)*	29.3	*(24.0)*	100
4th quartile at age 5	5.7	*(26.4)*	22.9	*(25.0)*	30.0	*(24.7)*	**41.4**	*(24.0)*	100

[20] Unfortunately, we cannot compare our results with the other study using Young-Loveridge's tasks, (the evaluation of the BSM resource), since this did not analyse correlations between age 5 and age 6.

Predicting Competency Scores at Age 6 From Scores on Another Competency at Age 5

Can age 5 performance on a particular competency measure predict age 6 performance on other competency measures? To find out, we used a skill-score measure originally devised for use in assessing the match between forecast weather and actual weather.[21]

In our analysis, we "penalised" most strongly differences of 3 quartiles between estimates of children's performances, and their actual performances. In other words, the larger the numbers of children moving from the lowest to the highest quartiles, and vice versa, between the ages of 5 and 6, the lower the degree of predictability.

Broadly speaking, the results showed that the score on the Mathematics measure at age 5 was the best predictor for scores at age 6 across all competencies.[22] But the level of association between the Mathematics score at age 5 and the scores on all the competencies at age 6 ranged from high for Mathematics (0.71) to very low for Individual Responsibility (0.19).

Table 16 shows the average level of association between the score on each competency at age 5, and scores on all competencies at age 6. These findings show that it would be unwise to attempt to use a limited set of measures at age 5 to predict children's performance across the board at age 6.

Table 16

Average level of predictive associations between a given competency score at age 5 and scores for all competencies at age 6

Competency	Predictive association
Mathematics	0.38
Literacy	0.26
Logical Problem-Solving	0.26
Communication	0.24
Perseverance	0.23
Fine Motor Skills	0.21
Curiosity	0.18
Individual Responsibility	0.18
Social Skills with Adults	0.18
Social Skills with Peers	0.16

Summary

Between the ages of 5 and 6, children made the most competency gains in Mathematics and in Literacy. Only around 10 percent of the children could read at age 5; only around 10 percent could *not* read at age 6. Use of the hands for cutting and tracing became more precise. Overall scores for Social Skills, Communication, Perseverance, and Curiosity stayed the same or declined slightly. The reasons for this "plateau" may include differing demands of school and early childhood education centres, differences in the length of time the teachers had known the children, or differences in experience of assessment.

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[21] Skill-score refers to the skill of the forecasting system. It reduces a prediction's contribution to a score by an amount proportional to the distance the result which eventuated was from the prediction. Snow appearing when cloud was forecast would attract a lower score than rain. The skill-score chosen was that devised by Neil R Gordon ("Evaluating the Skills of Categorical Forecasts", *Monthly Weather Review* Vol.110 No. 7, July 1982, pp. 657-661, American Meteorological Society). This measure quantifies the relationship in a contingency table with respect to the degree to which one dimension can be considered to be linked with the other.

[22] See Table 13, Appendix 1 for full results.

Individual children's scores at age 5 were not good predictors of their scores at age 6, with the exception of their performance in Mathematics, and, to a lesser extent, Literacy and Logical Problem-Solving. Children's Mathematics scores at age 5 were the best predictor of their overall performance at age 6.

In general we found that the children who had scored in the lowest quartile at age 5 were the least likely to score in the highest quartile at age 6. The children who had scored in the highest quartile at age 5 were the least likely to score in the bottom quartile at age 6. This finding raises some questions about the contribution which the first school year can make to children's relative competency levels. It also draws attention to the importance of the experiences and resources available to children in their preschool years.

CHAPTER 3

FAMILY RESOURCES, CHILDREN'S HEALTH, AND CHILDREN'S BEHAVIOUR

In this chapter we describe the family resources available to the children, and any changes in those resources, or in other important aspects of the children's lives, over their first year at school. We discuss family income, parents' employment, who cares for children, and relations with absent parents and extended families. Parents' assessments of children's health are outlined, as well as parents' views of the behaviour they find unacceptable in their child, their responses to such behaviour, and their responses to difficulties their children might be having.

Family Income

The data show a wide disparity in the income resources available to children in different family types. Of the two-parent families in the study, 38 percent had incomes of over $60,000, and 45 percent had between $30,000 and $60,000. No sole-parent families were in the highest income bracket; 14 percent had incomes between $30,000 and $60,000, and 12 percent had between $20,000 and $30,000. Two thirds of sole-parent families (67 percent) had less than $20,000 to live on.

More Pacific Island families (24 percent) were in the lowest income group than families from other ethnic groups.

The next table compares the family incomes of the study children at age 5 and age 6, and sets these alongside the 1996 Census data on household incomes for one family households with children.[23] Our study sample is reasonably representative of one family households with children in the income brackets from $15,000 to $50,000 per year. However, the sample under-represents one family households earning less than $15,000 a year, and over-represents those earning over $50,000 a year.[24]

Three-quarters of the children's families experienced no great change in income over the year. Fourteen percent of the study families went up 1 income bracket, 2 percent went up 2 income brackets, and 1 family went up 3 income brackets. Six percent of the families went down 1 income bracket, and 1 percent went down 2 income brackets.

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[23] 1996 Census: National Summary, p 91, Table 36.

[24]

Table 17

Family Income

Income Bracket		1993–94 (n = 307) %	1994–95 (n=297) %	1996 census income data for one family households with school children
Over $80,001		12	16	19
$70,001–$80,000 per year	"high income"	7	6	
$60,001–$70,000 per year		9	10	16
$50,001–$60,000 per year		11	13	
$40,001–$50,000 per year	"middle income"	14	12	10
$30,001–$40,000 per year		17	15	12
$25,001–$30,000 per year	"low income"	5	8	7
$20,001–$25,000 per year		4	3	4
$15,001–$20,000 per year		6	6	5
$15,000 and or less per year	"lowest income"	11	7	9
Refused		1	1	-
Do not know/cannot remember		1	2	19*

* not specified

Sources of Income

Wages or salary were the main income source for 59 percent of the study families.[25] For 18 percent, the main source of income was self-employment, and for 9 percent, income came from both wages and self-employment. State benefits were the main source of income for 14 percent.

The main income source for the top three income groups was wages or salary, whereas for the bottom income group, it was state benefits. Patterns of self-employment also differed for the different income groups: 37 percent of the top income group were self-employed (combined with wages or salary for 13 percent), compared with 24 percent of the second income group (combined with wages/salary for 7 percent), and 30 percent of the third income group (combined with wages or salary for a few, and also combined with Family Support payments for 27 percent). Only 3 percent of the group on less than $20,000 a year had self-employment as their main income source.

Most (85 percent) of the lowest income families received state benefits, and 54 percent of the lowest income families received Family Support. This supplement for low income families was also mentioned by 27 percent of those in the $20–$30,000 income bracket; 9 percent in this bracket received a state benefit.

Two-parent families were almost twice as likely (76 percent) as sole-parent families (40 percent) to have wages or salary as their main source of income. Self-employment was much more likely for two-parent than for sole-parent families (31 percent compared with 5 percent). The main sources of income for sole-parent families were benefits (66 percent) and Family Support (42 percent).

Mother's Education and Family Income

The next table shows a clear advantage for family income levels if mothers had a university degree or another tertiary qualification such as teaching or nursing. However, mothers whose highest qualification was a trades certificate or School Certificate were just as likely as those who had no qualification to be part of families whose income was less than $30,000.

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[25] This compares with 1996 Census figures for income sources for the age group 25–50 of 48 percent wages or salary, 16 percent self-employed, and 14 percent receiving government benefits.

Table 18

Family Income Levels and Mother's Highest Qualification

Family Income	No qualifications (n=47) %	Mid-school (n=63) %	Senior school (n=18) %	Trade certificate (n=62) %	Tertiary (n=50) %	University (n=51) %
More than $60K	6	19	22	29	41	67
$30–60K	47	37	56	42	47	24
$20–30K	14	24	22	13	6	4
< $20K	28	16	20	15	20	0

Differences in mother's school qualifications did not relate to whether the family's main income source was wages/salary or self-employment. However, there was a trend for mother's qualifications to show relationships with the receipt of a state benefit or Family Support. Families where the mother had no school qualification, or School Certificate only, were twice as likely to receive a benefit or Family Support as those where the mother had Sixth Form Certificate, and four times as likely as families where the mother had a seventh form qualification.

Where the main caregiver (usually the mother) worked full-time, there was a higher proportion of families whose main source of family income was wages or salary. Only 4 percent of families where the mother was in full-time employment received state benefits as a main income source. Families where the main caregiver either worked part-time, or was not in paid employment, had similar rates of benefit receipt.

Proportion of Income Spent on Housing

We asked parents to tell us approximately how much of their family income after tax was spent on housing, to give some idea of what resources might be available for other expenses, including children's activities.

Eight percent of the parents said they spent more than half their family income on housing, and 21 percent spent around half their income; 23 percent spent around a third of their income; and 37 percent spent a quarter or less of their income. Nine percent could not say what proportion of their family income was spent on housing.

Families whose main source of income was a state benefit were twice as likely as others to be paying half or more of their after-tax income on housing. Close to half (46 percent) of the lowest income group also found housing costs taking half or more of their income, compared with 36 percent of the low income group, 29 percent of the mid income group, and only 18 percent of the highest income group.

Two-parent families were twice as likely as sole-parent families to be paying a quarter or less of their after-tax income for housing. The reverse pattern applied for those who spent half or more of their income on housing: 46 percent of sole-parent families, compared with 26 percent of two-parent families. Only 28 percent of Pakeha/European families were paying half or more of their income after tax on housing, compared with 43 percent of Māori and of Pacific Island families.

This indicates that the differences between income groups are compounded when the focus shifts from total income to the proportion of income available after housing costs for spending on everything else, including education and activities for children.

Parental Employment

A quarter (25 percent) of the mothers were in full-time employment (slightly more than the 19 percent when the child was 5), 38 percent were employed part-time, and 35 percent were not in paid employment. Mothers' major reasons for not being employed (given by 33 percent of this

group) were their children (some of whom would be preschoolers), or preferring not to be in paid work. Around 10 percent of the mothers not in paid work felt an obligation to stay home. Another 10 percent were studying. Sole parents were more likely to be studying than the main caregivers in two-parent families (12 percent compared with 3 percent). Other reasons mentioned were lack of available employment, lack of after-school care, illness, and lack of family support.

None of the main caregivers in the lowest income group were employed full-time, but their part-time employment rate was as high as those in other income groups. Main caregivers employed part-time were almost three times as likely (35 percent) as those employed full-time (13 percent) to have an unskilled job. Main caregivers in full-time paid employment were twice as likely as those in part-time paid employment to have a professional job. Sole parents were twice as likely as those from two-parent families to have unskilled employment, but were just as likely to be in professional jobs. They were less likely to hold more than one job (3 percent compared with 11 percent).

Mothers who were not currently employed were equally likely to have been in unskilled, skilled or professional jobs at the birth of the family's first child. There were some changes in current occupation for just over a third of the women currently in employment. The pattern for both women and men who had been in unskilled jobs previously was much the same, with both showing some movement into more skilled employment. But mothers who had previously been in professional occupations were more likely than fathers to have taken skilled or unskilled jobs, and mothers who had been in skilled occupations were more likely than fathers to have taken unskilled jobs. This probably reflects the kinds of jobs where women find it possible to combine employment with family responsibilities, as well as the higher proportion of skilled and unskilled work which offers part-time employment.

Table 19

Change in Parental Occupations for Currently Employed Parents

	Mother's occupation before first child's birth			Father's occupation before first child's birth		
Current Occupation ↓	Professional (n=41) %	Skilled (n=82) %	Unskilled (n=14) %	Professional (n=58) %	Skilled (n=95) %	Unskilled (n=21) %
Professional	70	12	7	95	25	5
Skilled	22	60	36	3	67	38
Unskilled	7	28	57	2	7	57

Hours of Employment

The average week on the job was 39.66 hours for full-time employed mothers, and 13.40 hours for part-time employed mothers. But these averages mask a wide range. Part-time employment fell into two major groups: less than 10 hours a week (43 percent of those mothers employed part-time), or 20-29 hours a week (27 percent). Well over a third (37 percent) of the mothers in full-time jobs put in between 30 and 40 hours a week. Six percent put in an average of 50 hours or more a week.

The average working week for fathers employed full-time was 47.03 hours. Close to half (45 percent) of the employed men put in an average of 50 hours or more a week. Nine fathers were unemployed.

Of the women who were employed, 14 percent held more than one job, and 43 percent said that their job involved irregular hours, weekend work, shift work, long hours, or travel. Irregular hours were just as likely for women employed full-time as those employed part-time. Main caregivers receiving wages and those who were self-employed had much the same pattern of irregular job hours.

The men were less likely (5 percent) to hold two jobs, reflecting the high proportion in full-time jobs. Two-thirds (67 percent) of the men worked irregular hours, worked at weekends, had long hours, did shift work, or travelled in their paid employment. It appears that what was once outside the norm for paid work—hence the term "irregular"—is now becoming much more the norm, for women as well as men.

Care of Children

Almost all the care of the study children before and after school, during school holidays, or when the child was sick was done by parents themselves (96 percent). Just over a fifth (22 percent) could also call on grandparents or other relatives; 7 percent could call on the child's former early childhood education centre or caregiver; and 5 percent used a school-related programme (such as after-school care).

The next table shows how these options are related to the pattern of the main caregiver's paid employment. What is particularly revealing about this table is how reliant full-time employed parents are on their own relations and friends who are not in paid employment.

Table 20

Main Caregiver Employment and Child Care

Child carer	Fulltime in paid work (n=78) %	Part-time in paid work (n=109) %	Not in paid work (n=110) %
Parent	91	97	97
Relatives	46	17	9
Friends	18	8	3
Former ECE caregiver	18	6	3
School related programme	15	2	2

Higher income allows more options. Fifteen percent of the highest income group and 12 percent of the middle income group mentioned 3 or more people (including themselves) who looked after their child during illness, holidays, or before and after school. But only 5 percent of those in low income groups did the same. Parents in the highest income group were most likely to be using the child's former ECE caregiver (14 percent compared with 6 percent of all others), or to be using an after-school programme (10 percent compared with 3 percent of all others).

Enduring relations with the child's early childhood education service provide some children and families with continued support. Sole parents relied more than two-parent families on the child's former early childhood education service (16 percent compared with 6 percent), and also made more use of school-related programmes (8 percent compared with 4 percent).

The higher a parent's school qualification, the more likely they were to use a school related programme (rising from none of the parents without a qualification to 16 percent of those with Bursary or Scholarship).

More girls than boys were looked after by parents' friends (13 percent compared with 6 percent).

Home Resources

Home resources are often gauged by asking people to list their ownership of appliances. We used items from the International Association for the Evaluation of Educational Achievement (IEA) studies. All of the families had a washing machine. Only 6 were not on the telephone, 10 did not have television, and 11 lacked a car. Stereo sets and video recorders were also common (91 percent each). Half (50 percent) of the families owned a second car, up 7 percent from the year before.

Computer ownership was 57 percent, up from 47 percent a year previously.

The next table shows the association of family income levels, ethnicity and family type with appliance ownership.

Table 21

Family Characteristics and Appliance Ownership

Appliance → / Family Characteristic ↓	Telephone (N=297) %	Video (N=297) %	Computer (N=297) %	Second Car (N=297) %
Overall	*98*	*91*	*57*	*50*
Household Income				
More than $60,000	100	96	79	74
$30–60,000	98	91	56	49
$20–30,000	97	91	30	36
Less than $20,000	92	80	31	8
Ethnicity				
Pakeha/European	98	91	59	51
Māori	93	89	39	43
Pacific Island	95	86	10	33
Family Type				
Two-parent	98	92	61	58
Sole-parent	98	79	33	2
Mother's School Qualification				
No school qualification	94	90	40	37
School Certificate	99	96	47	53
UE	98	93	65	52
Bursary/HSC	100	88	70	57

Newspaper reading was not universal: 58 percent of the children's families got a daily newspaper, and another 3 percent got one at weekends only. Pacific Island families were least likely (33 percent) to get a daily newspaper, though another 24 percent got a newspaper at the weekend.

Table 22

Family Characteristics and Receipt of Daily Newspaper and Magazines

Family Characteristic	Daily Newspaper Received (N=297) %	Magazine/journal Received (N=297) %
Overall	*58*	*62*
Household Income		
More than $60,000	74	78
$30–60,000	64	62
$20–30,000	39	61
Less than $20,000	20	36
Ethnicity		
Pakeha/European	62	65
Māori	46	36
Pacific Island	33	48
Family Type		
Two-parent	65	68
Sole-parent	21	40
Mother's School Qualification		
No school qualification	46	58
School Certificate	53	51
UE	66	67
Bursary/HSC	68	75

A little under two-thirds (62 percent) of the children's families got magazines or weekly newspapers. These included women's magazines (15 percent), work-related or business (18 percent), middle-brow (e.g. *Sunday Star Times*) 14 percent, magazines such as *The Listener* (12 percent), tabloid papers (5 percent), sports papers (4 percent), hobby magazines (4 percent), and religious papers (2 percent). Fourteen percent of the parents also mentioned free papers, such as community newspapers. Māori were least likely (36 percent) to get magazines or weekly newspapers.

There were also differences in the kinds of magazines or papers bought by different income groups. The highest income parents bought more work-related material, more middle-brow papers, and more leisure or hobby-related magazines than others. The only kind of magazine bought by the lowest income group tended to be women's magazines. The lowest and low income parents were more likely to mention free community papers than others.

About a sixth of the children (16 percent) lived in families without any regular newspaper or magazine coming into the house.

Further Change In The Children's Lives

We described change as the constancy in preschoolers' lives in our first phase report. The first year of school—a major change in itself—also brought change for almost two-thirds (64 percent) of the study children. The two big sources of change for children in their sixth year were the same as they had been in the preschool years: a change in household composition (23 percent—most often the birth of a brother or sister), and moving house (19 percent). The percentages experiencing such changes in their sixth year were half as large as in the 3–4 prior years. But the same pattern does not show for changes of job within the family—16 percent of the children's parents experienced this in the child's sixth year, almost as high as the 20 percent experiencing it over the preceding 3–4 years. This may reflect more women moving into paid work as their child enters school.

Table 23

Changes in Children's Lives

Change	Changes over 3–4 years, at age 5 (N=307) %	Changes between age 5 & age 6 (N=297) %
Household composition changed	47	23
Moved house	50	19
Parent changed job/work hours	20	16
Death of family member/friend	13	6
One parent often absent/absent long-term	16	6
Accident/major surgery for family member	6	5
Change of early childhood education centre (age 5) or school (age 6)	14	4
Parents separated	-	4
Parent has new partner	-	3
Parental stress	-	3
Increased demands of a household member	-	2
Financial difficulty	5	1

There were changes in family type during the children's first year of school for 15 of the families. A fifth of the sole-parent families (8 of 40) became two-parent families, and 3 percent of the two-parent families (7 of 230) became sole-parent families.

Sole-parent families were twice as likely as two-parent families to shift house in the child's sixth year (30 percent compared with 16 percent). Two-parent families had more job changes than sole-parent families (18 percent compared with 10 percent)—not surprising, considering there were

two adults rather than one—and experienced more illness and death among close family or friends (12 percent compared with no sole-parent families).

Parents in the lowest income bracket were least likely to report a change of job over the year, or the long-term or frequent absence of one parent, but they were most likely to report a separation of main caregiver and partner (15 percent of this group, compared with 6 percent in the next highest bracket, and 2 percent in the two highest brackets).

Children who experienced change of some sort in the past year were around twice as likely as others to be unsettled (43 percent compared with 23 percent). Close to half (44 percent) of the parents had identified something which was unsettling for their child when they were near 5 years old. The coming transition to school had then preoccupied 16 percent of the children. Significantly fewer children, 36 percent, were reported to have something unsettling them at 6. The things that unsettled children at 6 covered a wide range: friction at home, bullying, changes in the parent's job, ill health, school itself, a change in the family, visiting a non-custodial parent, or conversely, not having access to the parent who was no longer in the household.

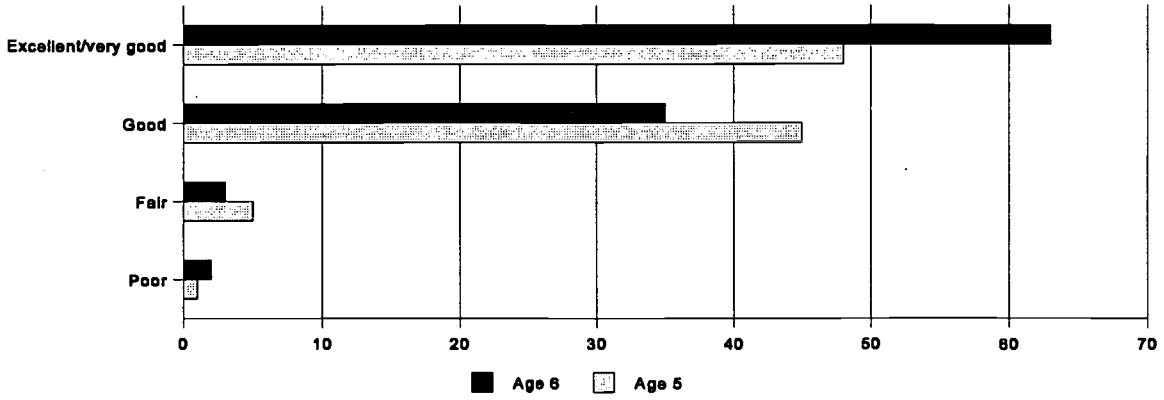
Twenty-six percent of the children who were unsettled were coping well—more than the 18 percent at age 5. Otherwise there were similar proportions at both ages for children whose behaviour deteriorated, who made greater demands on their parents, or who talked a lot about what was unsettling them (around a fifth each). Fewer children were withdrawn (4 percent compared with 7 percent at age 5). However, twice as many children had sleeping or health problems at age 6 (16 percent of those who were unsettled compared with 8 percent at age 5). More girls than boys were reported to be coping well with the things that unsettled them.

Children's Health

The children's health status showed some overall improvement from age 5 to age 6, as the next figure shows.

Figure 2

Parents' Perceptions of Their Children's General Health



The main health problems mentioned by those who described their child's health at age 6 as poor, fair or good were chronic illness (a third), ear infections (23 percent), or frequent colds (21 percent). These are much the same proportions as at age 5. There were also much the same proportions at 6 as at 5 for being on medication (7 percent), and "catching everything going" (5 percent). However, only 9 percent of the children suffered from chronic allergies at 6, compared with 20 percent at 5. Seven percent of children in this category (3 percent overall) were seeing a specialist. Only 36 percent of those with chronic illness at age 5 still had chronic illness at age 6. But 22 percent of those with ear infections at age 5 were still coping with them at age 6.

Health status was poorer in the lowest income families: less than half (48 percent) of parents in this group described their child's health as excellent or very good, compared with two thirds (67 percent) of others.

Contact with Extended Family

At age 6, most of the children had some contact with their extended families. But patterns of contact with extended family showed some change from the patterns found at age 5. For example, 30 percent of those whose extended family played a small but regular part at age 5 now saw them playing a larger part at age 6, as did 22 percent who had earlier had irregular contact. Only 11 percent of those who had no contact at age 5 still had no contact at age 6.

Three-quarters of the children in sole-parent families continued to see their other parent, and most of these (73 percent) got on well with them. For 12 percent of the children, relations with their non-resident parent deteriorated over the year. Children who no longer saw one of their parents were just as likely to remain in touch with that parent's extended family as those who continued to see the absent parent.

The extended family of the main caregiver in the lowest income families was most likely to be playing only a small part in the child's life, with irregular contact (26 percent compared with 10 percent for others). The middle income group was the one whose main caregiver's extended family was most likely to have regular contact and to play a large part in the child's life (70 percent compared with 43 percent for others).

Another factor which has a bearing on whether extended families can act as a resource for children is distance. This was linked to parents' qualifications. The higher parental qualifications were, the more likely it was for the extended families of both parents to play only a limited part, because of their distance from the family. Children whose parents had the highest school qualifications were least likely to have regular contact with their main caregiver's extended family (29 percent compared with 50 percent of those with no school qualification). However, their parents were more likely to say that this contact, though irregular, did play a large part in the child's life (19 percent compared with 3 percent for others).

In terms of the partner's extended family, children from the lowest income group stood out as being most likely to have no contact at all (15 percent compared with 3 percent for others). They were also less likely to have the partner's family playing a large and regular part in the child's life (10 percent compared with 32 percent for others). This is related to the fact that three-quarters of the lowest income group were families where one of the child's biological parents was absent. However, relatives were just as available for child-minding during illness in the lowest income families as in families with better incomes.

Parental Views of Children's Unacceptable Behaviour at Age 6

What kind of behaviour did the study parents find unacceptable in their 6 year old children?

Seventeen percent of the parents gave no answer to this question about unacceptable behaviour. Of those who did, 46 percent mentioned only one type of unacceptable behaviour; 26 percent mentioned two, 11 percent three, 9 percent four or five kinds of unacceptable behaviour, and 7 percent more than five.

Table 24

Parents' Views of Unacceptable Behaviour from Their 6 Year Olds

Behaviour	(N=297) %
Rudeness to parents	37
Physical fighting	36
Tantrums	29
Disobedience	29
Rudeness to people other than parents	21
Swearing	21
Whining	16
Lying	14
Loudness	13
Bullying	13
Not tidying room	11
Ignoring parent	7
Stealing	6
Not eating properly	6

We cannot tell from this question whether parents' responses were guided by their experiences with their own children, and/or their own values. Lying, for example, may be seen as something which is less clear-cut for children than adults.

What looms largest is disobedient behaviour, to parents or other adults, or disruptive behaviour, such as fighting or tantrums. A recent study (Maxwell and Carroll-Lind 1997) of 11 and 12 year old children (Forms 1 and 2) shows bullying to be a common and hurtful experience. Bullying children were more likely to be bullied themselves. Yet bullying is not high on the list of unacceptable behaviour mentioned by parents of 6 year olds. Does this mean that bullying was less of a concern for the parents, that they were not aware it was happening, or that there was not a high occurrence of it among the 8 year old study children?

Parents in the top two income groups were more likely than others to mention whining or dependent behaviour (19 percent compared with 7 percent). Parents with seventh form qualifications were more concerned than others about children not listening to their parents, or talking in "baby-talk".

Pacific Island parents mentioned a much wider range of unacceptable behaviour than did others, though they were less likely to talk about tantrums or destructive behaviour. Parents without school qualifications also had a wider range of behaviour that they found unacceptable from their child. Māori parents were more likely than Pakeha to mention rudeness to parents.

Not surprisingly, given the greater number of boys whose favourite activity was physical, boys' parents were more likely than girls' parents to mention physical fighting (42 percent compared with 28 percent).

Parental Responses to Misbehaviour

Do parents have different responses to different kinds of misbehaviour? The next table shows that they do. It also shows that misbehaviour is relatively common: it is a rare 6 year old child who does not lie, fight, or leave their room untidy!

Table 25

Parents' Responses to Children's Misbehaviour

(N=297) Parental Response	Lying %	Untidy room %	Fighting %
Talk through/negotiate	49	11	39
Cut treat/nice activity	10	22	4
Tell child off	16	13	16
Send child to room/time-out	10	6	30
Separate children	-	-	19
Help the child	-	23	-
Cut back pocket money	1	5	0
Ask for an apology	3	0	8
Give child a task or chore to do	1	0	2
Physical punishment	11	3	7
Ignore	4	14	3
Doesn't happen with child	18	9	16

The only difference in parental reaction related to family income was that the lower the family income, the more likely it was that a lying child would be sent to their room (21 percent of the lowest income families compared with 6 percent of the highest income families).

Parents from different ethnic groups had different patterns of reaction to their children's misbehaviour. Pacific Island parents were most likely to tell children off for lying, not tidying their room, or fighting (48 percent each). They were also the most likely to use physical punishment, more so for lying (33 percent) than for fighting or not tidying a room (14 percent each). Māori parents were also more likely to use physical punishment, particularly for fighting (25 percent) and lying (21 percent).

Parents of boys who fought were more likely (36 percent) to send them to their room than parents of girls who fought (23 percent); this was the only difference in response related to gender.

If their child did not tidy their room, parents without school qualifications were more likely than others to tell the child off (25 percent), send the child to their room (15 percent), or use physical punishment (14 percent). They would also use physical punishment more than others in response to lying (21 percent), but not in response to fighting. Parents who used physical punishment in one domain of misbehaviour were likely to use that again, or to tell children off, and vice versa. Consistency of response was also marked for those who preferred to talk things through and use encouragement.

Parental Response When Their Child Has Difficulty With Their Activities

We asked the parents what they would do if they saw their child was having real difficulty with something. Two-thirds (67 percent) would offer encouragement to the child to persevere, and 32 percent would wait for the child to ask for help, or felt the child should decide whether parental help was needed. Six percent said it depended how much time or patience they had, 4 percent noted that their child was unwilling to accept help, and 2 percent would tell the child to find something else to do. Only one parent would be critical of the child, whereas 9 parents would have been critical at age 5.

Boys' parents were more likely (75 percent) to offer encouragement than girls' parents (60 percent). Pacific Island parents were just as likely to offer encouragement as any others, but they were also more likely to say their reaction depended on their own mood, or suggest the child turned to another activity. Asian parents were less likely than others to offer encouragement, and more likely to wait for the child to ask for help.

Summary

A longitudinal study such as this allows us to chart changes at home for children as well as describe various factors at different ages. There were a small number of changes to family status, and some improvement in family incomes, over the children's first school year. However, the disparities in family income levels are still very marked, particularly for sole-parent and Pacific Island families. They show up in other disparities of resources available to children, and the proportion of income which families spend on housing. Twenty-nine percent of the parents spent half or more of their income on housing. Low income, Māori and Pacific Island, and one-parent families were those most likely to have to spend such a high proportion of their income on housing. As family income rose, so did the family receipt of a daily newspaper, regular journals or magazines, and ownership of telephone, video, computer, and second car.

Over the year, there was an increase of 6 percent in mothers employed full-time, but no increase in the proportion employed part-time. Fourteen percent of the women held more than two jobs, usually part-time, compared with 5 percent of the men. The men's average week on the job was 47 hours, with 45 percent putting in 50 hours a week or more. Women employed full-time put in 39.7 hours a week on average, and those working part-time put in 13.4 hours, though 27 percent did 20 to 29 hours a week. In addition, 43 percent of the mothers and 67 percent of the fathers put in irregular hours on the job.

Mothers employed full-time were more likely to have professional jobs. There was more unskilled work among the mothers employed part-time.

There was a clear advantage for family income levels if mothers had a university degree or other tertiary qualification such as teaching or nursing.

Wages or salary were the main income source for 59 percent of the study families. For 18 percent it was self-employment, for 14 percent, state benefits, and 9 percent combined wages and self-employment. Self-employment was much more likely to occur in two-parent families.

Most children continued to have some contact with their extended families, and only 11 percent of those who had had no contact when they were 5 continued to have no contact when they were 6. Most of the children in sole-parent families continued to see their non-resident parent, and to maintain good relations with them, though there was some deterioration in relationship for 12 percent of these children. Relatives were the main source of childcare other than parents themselves. Employed mothers, particularly those in full-time work, were often reliant on their own relatives and friends for childcare. The child's former early childhood educator was also a source of childcare. After-school care was used most by children from the highest income groups, and those whose mothers worked full-time.

Most of the children experienced some change in their lives, particularly changes in family composition (often another sibling), or location. While those who experienced change were more unsettled than others, the children were less unsettled than they had been at 5, partly because the transition to school had been made. Those who were unsettled were coping better. General health status showed some overall improvement too, but not for children with hearing problems.

Disobedient and disruptive behaviour was least acceptable to the children's parents. Bullying was either more acceptable, or did not occur often amongst the study children. Parental responses to misbehaviour was much the same for all income groups. Parental education, ethnicity, and the child's gender were related to differences in parental reaction to misbehaviour. Gender and ethnicity also showed some differences in relation to parental responses when they saw their child having difficulties. Two-thirds of the parents would offer encouragement to persevere, while 32 percent waited for the child to ask for help.

CHAPTER 4

CHILDREN'S ACTIVITIES AT HOME

What experiences do children have at home that complement and support their learning at school? In this chapter we describe family activities in which the children took part, the children's engagement in reading, writing, and mathematics activities at home, parental views of children's favourite home activities, and the children's television watching.

Family Activities Involving the Child

There were some changes between ages 5 and 6 in the overall pattern of family activities involving the study children. There was more eating out and less socializing with others at age 6 than at age 5; fewer literacy related activities, perhaps because school is seen as the place for that; fewer sociodramatic activities, and less routine housework, which may reflect children's absence from the home for longer periods now that they were going to school.

Table 26

Family Activities With Study Children

Activity	When study child aged 5 (n = 307) %	When study child aged 6 (n = 297) %
Physical	90	90
Socialising with others	66	55
Routine housework	60	47
Exploration/special events	58	64
Literacy-related	38	24
TV/movies	28	26
Mathematics/science-related	24	21
Church/community	19	15
Animals	18	13
Eating out	15	27
Aesthetic-creative	14	9
Sociodramatic	9	4
Music/dance	9	8
Related to parents' work	7	7
ECS-related (at 5); School-related (at 6)	5	10

The average number of family activities was 4.25, much the same as at age 5. The children from the highest income homes had more varied experiences than others: 43 percent often did more than 5 different activities, compared with 21 percent of the two middle income groups, and 15 percent of the lowest income group, though there were no statistically significant differences in individual activities.

Pacific Island parents reported many more activities conducted as a family than did others. They were more likely than others to mention as family activities those which were literacy related (48 percent), maths or science related (52 percent, compared with 20 percent Pakeha/European and 7 percent Māori), routine housework or gardening (76 percent, compared with 46 percent Pakeha/European and 29 percent Māori), watching TV or going to the movies (48 percent), church or community activities (67 percent), eating out (48 percent), and school related activities (29 percent).

Home Reading Activities

At age 5, 9 percent of the children were said by their parents to be reading. By the end of their first school year, 90 percent were said to be reading books on their own, and reading their own books. At age 5, 75 percent of the children had been reported by their parents to match sounds and letters; at 6, 91 percent were sounding out (new) words to increase their word knowledge.

Table 34 shows high proportions of the children engaged in most of the 9 reading activities we asked about.

Table 27

Home Reading Activities

Reading activity	(N=297) %
Reads words	98
Reads sentences	93
Sounds out words	91
Looks at books on own	90
Reads own books	90
Asks for favourite books to be read	84
Reads books from library	79
Memorizes favourite stories	76
Pretends to read	72

Girls were more likely to do 2 of the 9 activities we asked about: play at reading (84 percent compared with 62 percent of boys), and memorize favourite stories (87 percent compared with 71 percent of boys).

Of the 9 different reading activities we asked about, only 2 showed different patterns related to family income. Children in the low to mid income group were less likely than others to ask for favourite books to be read to them (70 percent), or to read books from the library (61 percent). At age 5, the income related differences in children's home reading had followed a more linear pattern; that is, the level of reading activities rose as the level of income rose.

As the next table shows, 61 percent of the children engaged in reading activities at home other than the 9 we asked about specifically.[26]

Table 28

Other Home Reading Activities

Reading Activity	(N=297) %
Reads signs/brand names	19
Reads newspaper or letters	14
Makes books and reads them	13
Reads to siblings	10
Spelling	7
Reads instructions/recipes	7
Reads out own stories or poems	6
Plays word games	5
Reads in language other than English	2

[26] These answers, as with the answers on other home writing and mathematics activities, came in response to open-ended questions. It is likely that the figures here underestimate the actual occurrence.

A few children listened to tapes while they read accompanying text. A few children also enjoyed word puzzles, used alphabet cards, played school, referred to a dictionary or encyclopaedia (some on CD-Rom), read recipes, enjoyed non-fiction books, or read music.

Girls were marginally more likely to do other home reading activities than boys (67 percent compared with 56 percent), particularly making and reading books (20 percent compared with 8 percent of boys), and showing a younger sibling how to read (13 percent compared with 4 percent of boys).

When it comes to breadth of reading activity, 73 percent of children in the highest income families were reported by their parents to do more of these other home reading activities, compared with 61 percent in middle income families, and lower proportions again in low (49 percent) and lowest (46 percent) income families.

There were also income related differences in some, but not all, of these "other" reading activities. Children in low income families did not make books and read them; but they and children from the highest income group were more likely than the middle and lowest income groups to do spelling. Children from the lowest income group were less likely than others to read signs or brand names, or to read a newspaper or correspondence.

In relation to the mother's highest school qualification, the only significant difference in the specific reading activities we asked about was that children whose mothers had no school qualification were the least likely to read books from the library (65 percent). These children were also less likely to read signs or brand names (10 percent, rising to 26 percent for children whose mothers had Bursary or Scholarship). Where mothers had Bursary or Scholarship, children were most likely to use tapes while reading, but still only 10 percent did so.

Home Writing Activities

Most children were writing their names and lists at age 6. It was also quite common for children in the study to write stories and poems, as the next table shows.

Table 29

Home Writing Activities

Writing Activity	n=297 %
Writes own name	99
Asks about specific letters	96
Writes lists	90
Copies printed material	80
Writes stories or poems	66
Copies family members' writing	59
Copies school work (e.g. stories)	59
Writes on the computer	40
Takes part in TV/video/computer programme involving writing	12

More girls than boys did three activities: copying printed material (87 percent compared with 75 percent), copying school work (68 percent compared with 51 percent), and writing stories or poems (78 percent compared with 56 percent).

There were two income related differences in the 9 children's home writing activities we asked about. Copying school work increased from 50 percent in the highest income group to 74 percent in the lowest income group. Conversely, the highest income group were the most likely to write on a computer (56 percent, compared with 37 percent of the second income group, 18 percent of the third, and 25 percent of the lowest). This reflects the greater proportion of computer owners in the highest income group. Children in sole-parent homes were less likely (49 percent) to be writing stories or poems, compared with children in two-parent families (69 percent).

Ethnicity showed associations with these two writing activities also, and one other. Pacific Island children were most likely to be copying school work, and family members' writing (81 percent and 91 percent), and least likely to be using a computer to write (10 percent)—not surprising, given their families' low level of computer ownership. Copying school work was most popular with children whose mothers had no school qualification (81 percent compared with 43 percent of the children whose mothers had Bursary or Scholarship).

We also asked about other writing activities. Over a third (36 percent) did these. Girls (50 percent) were twice as likely as boys (24 percent) to do them. The two highest income groups were also more likely to do them: 47 percent and 37 percent respectively, compared with 24 percent of the third income group, and 21 percent of the lowest income group. The numbers doing each "other" writing activity were too small to allow meaningful analysis once they were further broken down into income groups.

Making books was the main other writing activity (16 percent). From 3 to 5 percent (for each activity) kept a diary, made maps or symbols, or taught a younger sibling to write. Six percent used magnetic letters to make words. A few children were using a typewriter, using puzzle books or doing crosswords, writing letters or recipes, and some were writing on any available surface, including their own bedroom wall.

At age 6, children who had been able to write their own name at 5 were more likely than those who had not to be making up and writing lists, and almost twice as likely to be writing stories or poems, and writing on the computer. Children who had been doing other home writing activities at 5 were almost twice as likely to be doing these at 6 also. This contrasts with reading and mathematical activities, where the level of activity at age 5 showed no significant relationship with the level of activity at age 6.

Home Mathematics Activities

The next table shows the percentage of children who did each of the home mathematics activities we asked about at age 6.

Table 30

Home Mathematics Activities

Mathematics activity	(N=297) %
Tells own age	99
Counts out loud	97
Counts things	95
Adds things	92
Plays board games	89
Tells or tries to tell the time	87
Uses numbers when cooking, building, etc	85
Measures things	75
Subtracts things	67
Talks about halves, quarters and so on	65
Uses counting rhymes in word or song	64
Plays computer games/uses computer for number activities	52
Adds money correctly	29
Says times-tables	21

Children whose mothers had School Certificate or no school qualification were less likely than others to do more than 11 of the 14 activities. But there was a bigger difference related to family type, with 27 percent of children in sole-parent families doing 11 or more of the 14 activities, compared with 72 percent of children in two-parent families.

Income-related differences showed more in the mathematics activities than the literacy activities: 21 percent of the highest income children did 13–14 of the 14 activities asked about,

compared with 12 percent of the middle income group, none of the low income group, and 7 percent of the lowest income group. But since the list included computer games or activities, only those who had a computer at home could do all 14. This ruled out many low income children.

Mathematics activity increased as family income rose for 5 items: playing computer games (from 72 percent in the highest income group, down to 23 percent in the lowest—hardly surprising); measuring things or people (from 79 percent in the top two income groups to 68 percent in the lower two); telling the time or trying to tell the time (from 97 percent in the highest down to 74 percent in the lowest); subtracting things (from 79 percent in the highest down to 56 percent in the lower two); and adding money correctly (from 35 percent in the highest down to 26 percent in the lowest). Children from the lowest income group were least likely to play board games (72 percent).

Māori children were less likely than Pakeha/European children to subtract things, or to use numbers when involved with cooking or constructing, but they were more likely to play cards or dominoes. Boys were marginally more likely (58 percent) to play computer games, compared with girls (46 percent).

There were also some associations where the proportions in each category rose in line with the mother's level of qualification: playing computer games (from 39 percent of those whose mothers did not have a school qualification to 60 percent of those whose mothers had Bursary or Scholarship); measuring things or people (62 percent to 88 percent); talking about halves or quarters (48 percent to 76 percent); subtracting things (50 percent to 79 percent); and adding money correctly (21 percent to 31 percent). But the highest proportion, 46 percent, for this last activity was among children whose mothers' highest school qualification was Higher School Certificate. Indeed, this group also had higher proportions than other groups for playing computer games, and doing times-tables daily.

Close to half (46 percent) of the children also did other mathematics activities at home. They used the telephone (20 percent), played cards and games such as dominoes (11 percent), read letterbox numbers (6 percent), knew money denominations (9 percent), and used calculators (9 percent). A few children did sums at home, used numbers in programming videos and microwaves, were using a calendar, did mental arithmetic (usually with their parents), or could count in another language.

Again, we see differences in income reflected in the breadth of other mathematics activities: 56 percent of children in the highest income group were reported to do more than the 14 mathematics activities we asked about, compared with 33 percent in the lowest income group. Children from families in the highest income group were also most likely(15 percent) to be using a calculator, compared with others (7 percent).

Children's Favourite Activity

But what were the children's favourite activities at home? The next table gives parents' reports of these, compared with children's reports for their favourite activities at school.

Table 31

Children's Favourite Activities at Home and School

Favourite activity	Home (N=297) %	School (N=297) %
Physical activity	30	34
Drawing/painting	29	15
Reading/writing/language	27	31
Making things	27	-
Make-believe	25	2
Computer use	12	-
Social activity	10	14
Watching tv/video	9	-
Puzzles/maths	6	10
Eating	3	-
Nature/science	3	-

Animals were important for a few children, as were music or dancing. Computer use was the favourite activity of 21 percent of the highest income children, compared with 10 percent of the next income group, and 6 percent of the two lower income groups. Children from the lowest income homes showed more interest in nature or science than others did.

Some differences emerged in relation to ethnicity. Drawing or painting was more likely (57 percent) to be reported as a favourite activity for Pacific Island children. Other favourite activities for this group were more likely to include watching television or video (43 percent), and also social activities, eating, and helping (33 percent each). These may reflect the much higher incidence of these activities undertaken as a family in Pacific Island homes.

Physical activities were twice as likely to be reported as a favourite for boys (38 percent) as for girls (20 percent) Boys also favoured computers more (17 percent compared with 6 percent). Almost twice as many girls (34 percent) as boys (19 percent) liked to play make-believe.

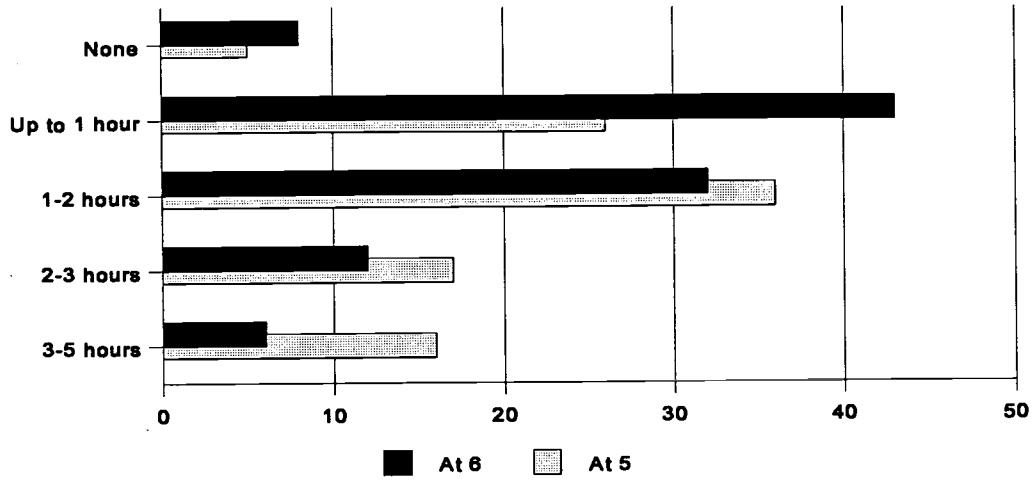
Physical activities, literacy-related and maths-related activities and puzzles, and social activities were enjoyed by similar proportions of children both at home and at school. Home was more the place for making things, drawing and painting, using a computer, and watching TV or video.

But individual children's favourite activities at school were unlikely to be the same as their favourite activities at home. This may be because the children told us about school, and parents reported about what they did at home. Or it may reflect the different range of activities on offer at home compared with school.

Television Watching

Time spent watching television seemed to decline for the study children between age 5 and age 6. The average time at 5 was 2.65 hours a day, whereas at 6, it was 1.26 hours a day. This may reflect the longer school day, and for some children, homework, since the study children were more likely to be watching more television or videos in the weekend at age 6 (44 percent) than they were at age 5 (33 percent). Watching less television at weekends than during the week was less common at age 6 (24 percent) than it had been at age 5 (42 percent).

Figure 3
TV Watching on Weekdays



In general, the pattern was for around a third of the children to be watching television for much the same length of time as they had at age 5, and for equal numbers to be watching an hour more or an hour less a year later. Thus most changes are within an hour either way, rather than being dramatic increases or decreases.

Seven of the 15 children who watched no television on weekdays at age 5 were still watching no television at age 6. Another 4 children also watched no television at age 6; all 4 had watched less than an hour on the average weekday at age 5. At the other end of the spectrum, half the children who had watched more than 3 hours a weekday at age 5 were watching less at age 6—usually 2–3 hours a weekday.

As at age 5, Pacific Island children watched more television on weekdays than did others: 41 percent of the Pacific Island children watched more than 3 hours of television on a weekday. This may be linked with their parents reporting that television or video watching was a family activity. At age 6 the amount of time spent watching television had no links with family income, though it had at age 5.

Summary

While the average number of family activities undertaken with the child remained much the same at age 6 as at age 5, there was less literacy related and sociodramatic activity, less routine housework and socializing with others, but more eating out. Pacific Island parents reported a much wider range of family activities including the study child than did others.

Most of the children were now reading, had their own books, and many borrowed them from the library. They were also writing—mainly lists, stories and poems—and copying family members' writing, school work and other printed material. Forty percent were writing on a computer. We found some correlation between the amount of writing activities at age 5 and the breadth of writing activities at age 6.

Most children were using numbers now, to play games, to measure, and to subtract. Half the children played computer games or used them for number activities. Only 29 percent were reported to be able to add money correctly, and 21 percent practised times-tables. Income-related differences were apparent for both literacy and mathematics activities at home, but more for mathematics.

Children's favourite activities at home were varied. As the next chapter shows, there were comparable proportions of children enjoying physical activity, literacy related, maths related and social activities both at home and at school. But individual children's favourite activity in one setting was not necessarily their favourite activity in the other. Home figured more in art work, computer use, and TV/video watching. TV/video watching was said to be the favourite activity of only 9 percent of the study children, and indeed the average hours watched declined by half over the first year of school, from an average of 2.65 hours a weekday at 5, to 1.26 hours at 6.

CHAPTER 5

THE FIRST YEAR AT SCHOOL

The first year at school is generally regarded as a major transition point in children's lives. In this chapter we look at patterns of schools attended, and how these related to family income, what parents thought of the contribution early childhood education made to this transition, the changes they saw in their child over the first year of school, their satisfaction with their child's initial school progress, and the factors which have a bearing on this. We describe teachers' perceptions of the children's initial school progress, including reading book levels, the children's areas of curriculum strength and weakness, aspects of their behaviour around the school, and teachers' perceptions of their contact with parents. We then turn to the children's own perceptions of their experiences at school, and the strategies they had for dealing with problems encountered in school work. Finally, we look at parental aspirations for their children, and parental choice of secondary school.

Patterns of Schools Attended

At age 6, we did not observe children in their new school settings, or rate the quality of those settings, as we had done for ECE services. What we used instead were some indicators of the resources which might be available to children at their school. One such indicator is the socio-economic mix of the school. This refers to the concentration or compounding of individual family incomes, occupations and educational levels in the school community. We asked teachers to rate their school's socio-economic mix. We also used the Ministry of Education decile rating (which often reflects a school's capacity to raise resources additional to government funding).[27] However, this rating applies only to state schools. The other indicators we used were class size (for each study child), and the proportion of children with English as a second language (ESL) in the study child's class (since anecdotal information suggested this could have an impact on the allocation of teacher time per child).

Table 32 shows that the schools attended by the study children were generally representative of Wellington region schools, though the children were more likely to be attending contributing schools, and less likely to be attending schools with high Māori enrolment. The table also shows some differences between Wellington region schools and New Zealand as a whole. The Wellington region has fewer low decile schools, and twice as many high decile schools, more private schools, more full primary schools, and fewer high Māori enrolment schools.

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27. Low decile schools can fundraise less than others (Wylie 1997, p. 30–32, 38). In the next phase of the study, we will be able to include schools' financial resources, including both government funding and locally raised funds.

Table 32

School Characteristics

School Characteristic	School sample (n=297)[28] %	Wellington Region (n=214)[29] %	National data (n=2244)[30] %
State	79	76	86
Integrated	14	17	10
Private	7	7	5
Decile 1–2	10	14	23
Decile 3–4	19	16	19
Decile 5–6	12	13	19
Decile 7–8	22	16	21
Decile 9–10	36	40	19
<8% Māori on roll	38	35	34
8–14% Māori on roll	24	20	17
15–29% Māori on roll	22	24	21
30%+ Māori on roll	17	22	28
Contributing	54	44	56
Full (incl F1–2)	43	52	40
Composite	3	4	4

School Characteristics

Family income and ethnicity were the two main family characteristics associated with differences in the characteristics of the schools attended by the children. Children from the highest income bracket accounted for three-quarters of the study children attending private schools, and they were more likely to be attending decile 9–10 schools when they attended state schools. The next table shows the other school differences associated with differences in family income.

[28] 297 children attending 122 schools.

[29] Primary and composite schools only.

[30] Primary and composite schools only.

Table 33

Family Income and School Characteristics

Income → School Characteristic ↓	Over $60k (n=96) %	$30-60K (n=119) %	$20-30k (n=33) %	<$20K (n=39) %	School sample (n=297)[31] %
State	68	82	88	85	79
Integrated	14	15	9	15	14
Private	16	3	3	0	7
Decile 1–2	2	9	27	23	10
Decile 3–4	5	23	27	26	19
Decile 5–6	13	11	6	10	12
Decile 7–8	20	19	18	23	22
Decile 9–10	42	35	18	18	36
<8% Māori on roll	58	31	18	21	38
8–14% Māori on roll	24	22	15	26	24
15–29% Māori on roll	6	28	33	23	22
30%+ Māori on roll	9	15	30	28	17
Contributing	40	57	58	72	54
Full (incl F1–2)	50	42	39	28	43
Composite	7	1	3	0	3

Income levels overlap with ethnicity. Māori and Pacific Island families in the study had lower levels of income than Pakeha/European families. Thus similar patterns emerged in relation to both income and ethnicity. Two-thirds of Pacific Island children in the study were attending decile 1–4 schools, compared with just over a third of Māori children, and a quarter of Pakeha/European children. The pattern was reversed for decile 9–10 schools: a third of Pakeha/European children in the study went to these schools, compared with 20 percent of Māori children, and 10 percent of Pacific Island children. Pacific Island children in our sample were twice as likely(29 percent) as Pakeha/European children (13 percent) to be attending an integrated school, and four times as likely as Māori children (7 percent). None of the Pacific Island children were attending a private school; Pakeha/European and Māori children attended private schools in the same proportion (6 percent).

Pakeha/European children were least likely (15 percent) to be attending a school with more than 30 percent Māori enrolment; 36 percent of Māori and 33 percent of Pacific Island children attended such schools.

Patterns for the Asian children in our sample need to be treated with caution, given their small number (12). They were more likely to attend private schools (16 percent), and high decile schools (a third). A quarter also changed schools during their first year of school.

There were no differences between sole-parent and two-parent families in the characteristics of the schools attended by their children.

Mother's education often plays at least some part in family income level, through the kinds of jobs available to women with different levels of qualifications. Income is the most likely basis for the links between a mother's school qualifications and the decile of her child's school. A fifth (20 percent) of the children whose mother had no school qualification attended decile 1–2 schools, compared with 3 percent of those whose mother had at least University Entrance. Conversely, 13 percent of the children whose mother had no school qualification attended decile 9–10 schools, compared with 53 percent of those whose mothers had at least University Entrance.

[31] 297 children attending 122 schools.

Choice of School

Most (86 percent) of the children were attending the school their parents told us they would be attending when we interviewed them close to the child's fifth birthday. Two percent of the parents had not decided their child's school when we first interviewed them; 6 percent of the children went to a different school, and another 6 percent changed schools during their first year.

Shifting house was the main reason (75 percent) for changing school or not attending the school originally stated. A wide range of other factors also played a part for the rest of the children in the latter group: they included school facilities, school reputation, a particular programme, current or previous attendance by another family member, disciplinary standards, and class size. One or two parents also made a different choice to allow the child to stay with their friends, or to mesh with the parents' needs, such as using a school close to the parent's workplace.

Looking at patterns of choice and attendance, we found that families in the highest income bracket were more likely to be weighing options at age 6 (6 percent were considering 2 schools, compared with 1 percent for other income groups). Judging by the higher proportion of children in this income bracket attending private schools, it is likely that this weighing up includes a choice of private or state school.

There was a trend for parents who were not satisfied with their child's initial school progress (see below) to have been still undecided between two schools as their child neared 5 years old, or to change the child's school during the first year more often than others. However, the number of parents involved was small.

Changes of School in The First Year

Six percent of the children changed schools during their first school year, usually because of shifting house. Children from families in the highest income bracket were least likely to have changed schools in their first year: only 4 percent did so, compared with 11 percent of all those with family income under $60,000.

Children who changed schools during their first year showed less enthusiasm about school than others (33 percent compared with 62 percent overall). They were also around twice as likely to have taken a while to settle into school (44 percent compared with 23 percent overall).

Parents' Views of the First Year at School

Contribution Made By Early Childhood Education

All the study children had had some experience of early childhood education (ECE) in group settings outside the home. Most parents thought their child's early childhood educational experience had played a positive part in their child's entrance into the new world of school. It had given their children experience relevant to the structure of school, working with and among others, and some common activities. A few looked wistfully back to a better ECE staff:children ratio compared with school.

Table 34

Parental Views of the Contribution of ECE Experience to their Child's First Month at School

N=297 Contribution	%
Positive	
Child used to mixing with other children	49
Child used to routines/activities	38
Child used to working with adults	30
Knew other children from ECE	26
Gave confidence/social skills	15
Positive comment, unspecified	12
ECE and school worked closely together	3
Negative	
No help	6
Used to a better staff:children ratio	3
Used to a less structured environment	3

Parents had also been generally positive about their child's ECE when their child was attending it, but almost half had identified some negative aspect, usually in their child's contact with other children. Were there any similarities in parents' perceptions of their child's ECE, and their perception of their child's first school year?

Parents who felt there had been some negative aspects of their child's last ECE experience were just as likely as others to think that ECE experience helped their child adjust to school, However, 8 percent of this group thought the experience made no difference, compared with 4 percent of those who had seen no negative effects. This group of parents was also more likely (34 percent) to have some queries about their child's progress than those who had identified no negative aspects of ECE (18 percent). Discomfort in talking to the child's school teacher was also higher among this group than the others (12 percent compared with 4 percent). But these are not major proportions, indicating only some overall continuity in parental perceptions of ECE and school.

Parents who had discussed a child's problem with the ECE teacher were more likely (64 percent) to approach the child's school teacher to discuss any problems than those who had not (49 percent). But there was no close correlation between the kinds of problems parents discussed with their child's teacher at age 5 and age 6. Only a third of the parents who had discussed a social-emotional problem at age 5 did so with their child's first primary teacher; 20 percent discussed a health or sleeping problem at both ECE and school; and 17 percent discussed a problem with their child's educational progress in both settings.

Eight of the 19 parents who thought their child's ECE experience had not helped the child's adjustment to school also reported that their child had taken some time to settle at school, as did 4 of the 8 parents who thought their child had found it hard to adjust to the higher staff:children ratios in schools.

Parents who thought their child's ECE experience had not helped them settle into school were slightly less likely than others to report that their child's general knowledge had increased over their first year at school, or that their child was more enthusiastic about books, or more socially adept. They were also slightly less likely to report that their child had become too confident, or bossy.

Making the Transition to School

Most children in the study were reported by their parents to be enthusiastic about their early school days (62 percent). Five percent of the children were unhappy with school, and 1 child was bored. Close to a quarter (23 percent) of the children were reported to have taken time to settle into school. Ten percent were simply matter of fact about their new environment, showing neither enthusiasm nor discomfort.

The only characteristic associated with different patterns of how the children had taken to school was gender. Boys were less enthusiastic (55 percent) about starting school than girls (71 percent).

What changes had the parents noticed in their child since starting school? They were largely positive. Most noticed was a growth in the child's confidence. The overt content of curriculum figured, as did social skills and relationships, particularly for those who took a while to settle into school (50 percent).

Table 35

Parents' Perceptions of Changes in their Child over the First Year of School

(N=297)	%
Positive	
More confident or independent	62
More socially adept	33
More enthusiastic about books, reading and writing	31
Increased general knowledge	26
Making more or closer friends	18
More enthusiastic about learning	12
Improved physical skills	9
Positive comment (unspecified)	4
Negative	
Negative (wide range)	21
Bossier or too confident	13

Parents in the highest income bracket were twice as likely as others (38 percent compared with 19 percent) to name 3 or more changes in their child over the first school year. But parents in the top two income brackets were also more than twice as likely (26 percent) to mention something negative, compared with parents in the lower two income brackets (11 percent).

More Pacific Island parents saw changes in their children after their first year at school than did others, particularly in their becoming more enthusiastic about books and more socially adept, making friends, and improving their physical skills. Girls were seen as more likely (39 percent) to show enthusiasm about books than boys (25 percent).

Parents who described their child's reaction to school as matter of fact, bored, or taking a while to settle were twice as likely (36 percent on average) to have some reservations about their child's progress over their first year as those who described it as enthusiastic (18 percent). The perception that the child's first year at school had made him or her too confident was also linked to the level of satisfaction with the child's progress. Only 54 percent of parents perceiving over-confidence were satisfied, compared with 67 percent overall, though most expressed reservations rather than dissatisfaction.

Parental Satisfaction With Their Child's Initial School Progress

Few parents were dissatisfied with their child's initial school progress.

Table 36

Parental Satisfaction with their Child's Initial School Progress

	(n=294)	
	%	n
Satisfied	67	199
Mixed views	25	74
Dissatisfied	7	21

Māori and Pacific Island parents were marginally more satisfied with their child's initial school progress than Pakeha/European parents.

Those who were dissatisfied or who had mixed views spoke of drawbacks in the school itself, for example in class size, discipline, or the quality of the teachers (34 parents), the child not making enough progress (33), the child not being sufficiently extended (31), the child's unhappiness at school (14), or the child's boredom (1).

Where parents were dissatisfied, it was usually because their child was not making sufficient progress at school (16 parents). The other main reason was that the child was unconfident or unhappy. There was no such clear pattern among the much larger proportion of parents who were satisfied with some reservations. Many of these parents thought their child was making good progress in their first year at school.

Parental Satisfaction and Teacher Assessment

Parental satisfaction showed some correspondence with teachers' assessments of the children's overall progress, but not at a high level (r=0.24). This is an intriguing finding. It indicates that parental satisfaction with children's school progress is not based only on their academic achievement, or their standing relative to other children.

Almost half the parents who were dissatisfied had children whose teachers described their initial school progress as slow, compared with 31 percent of the parents with reservations, and 10 percent of the satisfied parents. However, 15 percent of the dissatisfied parents had children described by their teachers as making excellent or very good progress. Parents who were satisfied with reservations were just as likely as satisfied parents to have children in this top bracket of teacher assessment.

Even more lack of pattern showed in the relationships between parental reasons for concern, and teacher assessments. Children of parents who thought they were unconfident, unhappy, or not being sufficiently extended, or had doubts about some aspect of the school, were just as likely to be rated by their teachers as making excellent or very good progress as those whose parents were satisfied with their progress.

Parental Satisfaction and Reading Book Levels

Previous research on children's initial school experience has shown that teachers thought parents often used reading book levels to gauge their child's overall progress. This is probably because reading books come home, whereas mathematics work often does not, particularly with an activity based programme such as BSM (Wylie and Smith 1995). When we looked at parental satisfaction in relation to the reading book levels identified by the children's teachers, we found mixed evidence on this point.

We did find that 75 percent of the children with dissatisfied parents were at the lowest four

levels (magenta to dark blue), compared with 44 percent of the children with satisfied parents, and 51 percent of the children with parents with reservations. Similar proportions of the children with parents in the latter two groups were reading at the high reading book levels, but only 5 percent of the children with dissatisfied parents.

Yet the relations between children's performance and some of the reasons parents gave for their lack of satisfaction are less clear. Children whose parents described them as unhappy or unconfident at school appeared at all the reading book levels. Children whose parents felt they were not being sufficiently extended also appeared in representative numbers at all the levels except the top two, where their proportion dropped to 3 percent. By contrast, children of parents who were concerned about some aspect of the school were more likely to be found in the top two reading levels than the three levels immediately below.

Parental Satisfaction and Competency Scores

Chapter 7 shows that parental satisfaction with their child's initial school progress was related to their child's rating for 6 of the 11 competency measures, including Literacy—but not including Mathematics. So it seems likely that it is indeed literacy related activities which parents use most to gauge their child's progress. This finding is particularly interesting in view of our analysis of the relationship between competency levels at age 5 and at age 6. It was mathematics performance at age 5, not literacy performance, which was most predictive of children's performance in other competencies at age 6.

There was a mixed pattern of relationships between the reasons parents gave for their satisfaction or lack of satisfaction with their child's progress, and the children's average scores on the Mathematics and Literacy competencies. Scores did become consistently lower moving from parents who said they were satisfied with their child's progress because they were making good progress, to those who believed their child was making insufficient progress, on all the measures except Logical Problem-Solving, Curiosity, and Fine Motor Skills (though sometimes the differences were slight).

But there is very little difference between the average scores of children whose parents were satisfied with their progress, and those who found some drawbacks in aspects of the school. There is also little difference between the scores of children who were thought to be unhappy at school or who were thought to need more challenge in their schoolwork. Scores for these two groups were similar, and lower. The child who was described as bored by school showed low scores on Perseverance and Individual Responsibility, but high scores on all the other competency measures. (See Table 14, Appendix 1, for the full statistical results.)

Parental Satisfaction and Gender

When we asked parents for their views on the impact of ECE for their child in the first phase of this study, their answers were alike for boys and girls. But only 62 percent of the parents of boys were satisfied with the progress their children were making at school compared with 75 percent of the parents of girls.

Parents thought 17 percent of the boys were not making good progress, compared with 5 percent of the girls. Boys' parents were also more likely (30 percent) to have discussed an academic or cognitive problem with the child's teacher, compared with girls' parents (19 percent). Girls were more likely (39 percent) to show enthusiasm about books than boys (25 percent). And as we saw above, boys were less enthusiastic than girls about starting school.

Comparing girls' and boys' performance on our competency measures showed girls ahead on only one of the two "academic" competencies, Literacy. Girls' and boys' levels of Mathematics performance were the same. Boys were ahead of girls on Logical Problem-Solving and Curiosity, two of the competency measures whose 5 year old scores had the greatest predictability for the 6 year old scores. Girls were ahead of boys at age 6 on Perseverance, Independence, Social Skills

with Peers, and, marginally, Communication and Social Skills with Adults. This latter group of competencies is relevant to the transition to school. These differences in social competencies which favour girls and the lower rate of parental satisfaction with boys' initial progress indicate that parental views of their child's initial school progress take in social as well as academic competencies.

Parental Satisfaction and Family Income Levels

Family income levels had some bearing on parental reasons for satisfaction. Parents from the top income bracket were over-represented among those who thought their child was unconfident or unhappy at school. With parents from the second highest income bracket, they were slightly over-represented among those who felt their child was not making good progress in their first school year. Parents from the second highest income bracket were also more likely than others to have doubts about some aspect of school provision.

Parental Satisfaction and School Type and Decile

Dissatisfaction was also related to the type of school the child attended. A quarter of the parents whose children attended private schools expressed dissatisfaction with their child's initial school progress, compared with only 6 percent of those attending state and integrated schools. Three-quarters of the children at private schools were from families in the highest income bracket. Parents of children at decile 9–10 schools (the highest socio-economic decile) were considerably less likely to say they were satisfied (57 percent) than those with children at schools in other deciles (76 percent).

Parents of children who attended decile 5–6 and decile 9–10 schools were more likely than others to think that their child was not being sufficiently extended. Among children whose parents thought they were unconfident or unhappy, those attending decile 7–8 and 9–10 schools were over-represented. Parents of children attending these higher decile schools were also more likely than others to have concerns about some aspect of the school.

However, as the next section shows, higher school decile level was associated positively with the children's achievement on a number of our competency measures. Children attending private schools scored no worse than others on every measure except Word Recognition, where they scored better.

So this difference suggests that parental satisfaction may reflect expectations as much as achievement. If this is so, it raises some interesting questions in relation to any increase in policy emphasis on parental choice as a way to improve schools. Parental choice (and school rolls or popularity) may not be a sufficiently accurate gauge of children's performance levels, or of the worth of a school.

Parental Satisfaction and Mother's Education

Satisfaction with a child's initial school progress rose as the mother's level of school qualification fell: 59 percent of mothers with a seventh form qualification, 67 percent of those with University Entrance, and 81 percent of those with no school qualification were satisfied. However, the proportions dissatisfied were much the same for each level. As for being satisfied, but with reservations, 34 percent of those with a seventh form qualification came into this category, compared with 15 percent of those with no school qualification.

Four percent of those without a school qualification thought their child was not making good progress, compared with 14 percent of those with some school qualification. Yet both groups were equally likely to discuss their child's academic problems with the teacher.

Parents and Teachers

Only one parent interviewed had not met their child's teacher. The majority of parents (89 percent) were comfortable in talking to the child's teacher about their child, and 8 percent were comfortable talking about some aspects, but not others. Only 3 percent (10 parents) said they were not comfortable. Parents who were dissatisfied with their child's progress made up two-thirds of these 10 parents. Their discomfort would presumably make it harder to address the child's problems.

Parents often worked with their child's teacher on problems encountered by their child (57 percent). The area most frequently approached this way was the child's happiness and social well being—problems such as lack of confidence, or bullying (34 percent). A quarter of the study parents talked with their child's teacher about the child's progress.

Most were positive about this joint work, but 7 percent felt such joint discussion had not helped their child. Among those parents who felt that discussing a child's problem with the teacher had not achieved any result, dissatisfied parents were over-represented: 30 percent (7 parents) felt this, compared with 4 percent of satisfied parents.

The findings above indicate that some parents may have higher expectations than their child can fulfil. But the relatively high degree of unease in talking to teachers which we found among parents who were dissatisfied with their child's initial school progress does put more of an onus on teachers at least to try to ease the discomfort felt by some parents, so that parent and child do not become distrustful of the teacher, the school, or education in general.

Teachers' Descriptions of the Children's First Year At School

Attendance

Few of the children had poor attendance records in their first year at school. Teachers reported only 2 percent as having poor attendance records, and a further 7 percent only satisfactory attendance, whereas 91 percent had good attendance. School attendance was least good for children in the second lowest family income bracket, with 17 percent satisfactory only, and 3 percent poor. Māori and Pacific Island children's attendance was more likely to be judged only satisfactory (18 percent and 19 percent respectively).

Illness and poor health were the main reasons teachers gave for attendance being poor or only satisfactory, though family commitments were also mentioned.

Children's Overall Progress In Their First School Year

Teachers described the overall progress of the study children as follows: excellent or very good, 33 percent; average, but very good in some curriculum areas, 21 percent; average or medium, 28 percent; slow, 18 percent; minimal, 1 percent (including a special needs child). "Average" children are not at the halfway point of achievement as one might assume, but are *below* halfway.

Family income was the only family factor associated with differences in teacher assessments. More children in the highest income bracket at age 5 were judged by their teachers to be making very good or excellent progress (44 percent compared with 25 percent of others). The proportion of children whose progress seemed slow to their teachers increased as income declined (from 9 percent of those in the highest income bracket, to 25 percent of those in the lowest income bracket). Differences in ethnicity or family type showed no links with differences in teacher assessments of children's overall performance.

Reading Progress

Teachers, like parents, appeared to use reading as a key to their overall assessment of children's initial school progress. We asked teachers to give us the colour level at which each child was reading. These levels are widely but not universally used in New Zealand early reading. Fortunately, we were able to obtain them for all except 5 of the children in the study.

Table 37

Reading book level at age 6

Reading book level	(n=293) %
Magenta (lowest)	2
Red	11
Yellow	18
Dark blue	16
Green	13
Orange	14
Blue	7
Purple	5
Dark yellow/gold	7
Further on than gold (highest)	5

The next two tables describe the children's reading book levels in terms of their scores on our two measures of Literacy. They show that for the very high level readers, reading book level was a very good gauge of performance on both these measures. Word Recognition scores rose as reading book levels rose, though similar proportions of children from adjacent reading book levels (as grouped here) were achieving the same scores. Scores on Invented Spelling followed the same pattern. However, children from the lowest reading book levels were just as likely as those reading at high levels to achieve a score in the second highest quartile on this measure.

Table 38

Reading Book Levels and Word Recognition Scores

Reading book levels → Word Recognition quartile ↓	magenta—red—yellow (n=93) %	dark blue—green—orange (n=130) %	blue—purple—dark yellow—gold (n=56) %	further on than gold (n=14) %
1. 0–9	60	9	0	0
2. 10–19	34	36	5	0
3. 20–28	3	39	30	7
4. 29+	2	17	64	93

Table 39

Reading Book Levels and Invented Spelling Task Scores

Reading book levels → Invented Spelling quartile ↓	magenta—red—yellow (n=93) %	dark blue—green—orange (n=130) %	blue—purple—dark yellow—gold (n=56) %	further on than gold (n=14) %
1. 0–32	52	16	2	0
2. 33–47	27	35	11	7
3. 48–53	22	25	29	7
4. 54+	0	24	59	86

The next table shows that there are associations between reading book levels, current family income, and the school decile rating. Ethnicity showed no statistically significant associations with reading book levels.

The final column shows that while there are significant differences related to family income, neither family income nor school decile seems to affect the very highest performing readers at this age.

Table 40

Children's Reading Book Levels, Family Income and Teacher Rating of Progress

Reading book level →	Magenta—red—yellow (lowest) n=93 %	Dark blue—green—orange n=130 %	Blue—purple—gold n=70 %	Further than Gold (highest) n=14 %
Study Children Overall	*31*	*43*	*24*	*5*
School Decile				
1–2	49	39	3	3
3–4	38	49	13	0
5–6	36	36	21	6
7–8	32	49	15	1
9–10	24	46	21	9
Current Family Income—age 6				
< $20,000	42	40	18	5
$20–30,000	51	37	12	6
$30–60,000	34	47	19	3
> $60,000	19	44	37	6
Rate of Progress				
Slow	79	15	0	0
Average	41	54	4	0
Average +	18	60	20	0
Very good/excellent	4	39	56	15

More children from decile 1–2 schools were on the lowest reading book levels than children from decile 9–10 schools. Decile 3-8 schools had the same proportions of children on the lowest reading book levels. At higher levels, there is a clearer distinction between low decile schools and others, but there is no pattern of reading book levels rising as school decile rises. Decile 3–8 schools have much the same proportion of children on the top two groups of levels as decile 9–10 schools. There were no statistically significant differences among schools of decile 3 and above.

Children attending schools with very low Māori enrolment, or described as serving a mainly middle income community, were over-represented among those reading on the top four levels. Children attending wide-range or low-middle income schools were represented in proportion to their overall numbers. Children attending schools in mainly low income communities were under-represented among those reading on these higher levels.

Children from high Māori enrolment schools or those serving low income communities were only slightly over-represented among those reading on the bottom two levels. Private schools had more of their children on the four highest reading book levels than state or integrated schools, but the same proportion on the two lowest levels.

Reading Recovery

Reading recovery is provided for 6 year olds who are deemed to be at risk of not developing reading skills, on the basis of their performance on the "6 year net" measures. Funding comes from a national pool which has not increased over the past few years, even though the number of 6 year olds in schools has increased over the same period. The national funding pool is allocated to regions in proportion to the number of 6 year olds in each region. It is up to each school to

decide which children these funds are used for.

Overall, 9 percent of our sample were receiving Reading Recovery at age 6, another 4 percent were going to take part in the programme, and a further 6 percent would be doing so if the school could afford it—giving a total of 19 percent. Among children from the highest income families, 10 percent were either already in Reading Recovery, were going to receive it, or would receive it if resources allowed, compared with 20 percent of others (with the highest proportion, 33 percent, from families in the low income bracket of $20,000-$30,000).

Reading recovery assistance showed substantial associations with the children's reading book level—and some disparities. One third (33 percent) of the children on the bottom two levels were not receiving and would not receive Reading Recovery; nor would 58 percent of those on the third to bottom level, nor 82 percent of those on the fourth to bottom level. However, 1 child reading at the top two levels did receive Reading Recovery assistance, as did 5 children reading in the middle 3 levels.

While reading book level gives some indication of which children should receive this additional help, it does not do so consistently. Access is based on other related criteria, and on the available resources. In schools where larger numbers of children are on the lowest reading book levels, more of them will not receive help.

Children's Curriculum Strengths and Difficulties

Table 41 gives teachers' perceptions of the study children's curriculum strengths and weaknesses. Few children were seen as having no areas of strength, and almost half the children were seen as having no particular areas of difficulty.

Table 41

Children's Areas of Strength and Difficulty in the Curriculum

(N=297) Curriculum Area	Strength %	Difficulty %
Mathematics	48	9
Reading	43	28
Story writing	35	26
Art or music	32	5
Oral language	26	14
Physical education	26	8
Handwriting/printing	20	15
Science	19	2
Spelling	12	14
Social studies	11	2
Nothing	5	45

Family Income

At both age 5 and age 6, children from the highest income families were more likely to have mathematics mentioned as an area where the child showed strength (61 percent compared with 43 percent for others).

At age 5, the higher the income of the children's families had been, the more likely it was that their teachers would say they had no difficulty in any curriculum area (rising from 37 percent of the lowest income group to 57 percent of the highest income group). However, this relationship did not hold for family income at age 6. There was only one specific area where the proportions of children having difficulty related to family income at age 6: only 6 percent of children from the highest income families were reported to have difficulty with oral language, compared with 17 percent of those from all other families.

Ethnicity

Spelling was a particular strength of Asian children (42 percent).

Teachers were more likely to see Pacific Island children as having difficulty with reading, story writing, and oral language. Teachers were less likely to see Pakeha/European children as having difficulty with mathematics.

English as a Second Language

Twice as many children whose first language was not English were thought by their teachers to have difficulty with reading, story writing, and spelling, and four times as many to have problems with their oral language. Yet these children's competency levels on our Literacy measures showed no significant differences, though they did score lower on average than other children on the Communication measure.

Gender

There were a number of differences between girls and boys in teachers' assessments of their curriculum strengths. The next table shows similar proportions only for oral language, physical education, and social studies.

Table 42

Gender and Children's Areas of Curriculum Strength

Curriculum Area	Female (n=135) %	Male (n=163) %
Reading	57	32
Maths	36	58
Story writing	49	23
Handwriting/printing	28	13
Oral language	30	23
Music/art	39	25
Physical education	22	29
Spelling	20	6
Science	12	25
Social studies	13	10

The pattern for children's areas of curriculum difficulty showed these patterns in reverse, except for mathematics and science: similar proportions of girls and boys were said to have difficulty with these two.

Curriculum Areas and General Progress

The next table shows strengths in relation to overall school progress. Most (85 percent) of the children rated as making excellent/very good progress by their teachers were said to have strengths in reading, whereas only 58 percent were said to have strengths in mathematics. Interestingly, among those rated as making slow progress in their initial school year, 49 percent were said to have strengths in mathematics—by far the dominant strength among this group, approached only by physical education (42 percent).

Table 43

Children's Areas of Strength in Relation to their Initial School Progress

Teacher assessment of child's initial school progress – Curriculum Area	Slow (n=55) %	Average/ medium (n=82) %	Average but very good in some areas (n=65) %	Very good/ excellent (n=96) %
Overall	*19*	*28*	*22*	*32*
Reading	4	24	39	85
Maths	49	31	54	58
Story writing	4	31	22	67
Handwriting/printing	15	16	15	28
Oral language	13	24	29	32
Music/art	28	33	29	33
Physical education	42	27	28	15
Spelling	2	6	8	26
Science	13	12	31	21
Social studies	6	12	12	13

However, children who were rated by their teachers as strong in mathematics were just as likely to score low on the Mathematics competency as to score high.

There was a stronger association between children's scores on the literacy tasks and teachers' perceptions of their curriculum strengths. Half of the children who were seen as strong readers scored in the top quartile of the Burt Word Recognition measure, as did 58 percent of those seen as strong spellers, and 42 percent of those seen as strong story writers. By contrast, only around a fifth of those seen as strong in mathematics, handwriting or printing, oral language, music, art, sport, science or social studies scored in this top quartile. High scores on the Invented Spelling measure showed similar association with being seen as strong readers.

If a child did not have a strength in a curriculum area, it did not follow for the teacher that they had difficulty in that area, suggesting that teachers might perceive a middle level of performance which is neither strong nor weak.

Children's Behaviour

When it came to children's non-curriculum strengths, girls were more likely than boys to be seen as having strengths in maturity, reliability, and organisation.

Table 44

Teachers' Views of Children's Non-curriculum Strengths

Strength	(N=298) %
Kind/warm-hearted	55
Willing	46
Reliable	43
Tries hard	43
Outgoing	31
Mature	26
Organised	19
Leader	14
None	3

Children assessed as making slow progress were less likely than others to be described as reliable or trying hard. Children assessed as making very good or excellent progress were more likely to be described as mature (46 percent) or as organized (31 percent) than those assessed as average (17 percent mature, 15 percent organized).

Teachers of children from the lowest income families at age 6 were less likely to describe one of their strengths as trying hard (21 percent, compared with 44 percent of other children).

As the next table shows, teachers were less likely overall to describe weaknesses in the children's behaviour, manner, or approach to life. This probably reflects New Zealand teachers' emphasis on a positive approach to working with children.[32]

Table 45

Teachers' Views of Children's Non-curriculum Drawbacks/Weaknesses

Drawback	(N=298) %
None	28
Passive (shy, too dependent)	26
Poor self-concept/low self-esteem/insecure	18
Self-centred/wilful	16
Impatient	13
Aggressive	9
Lacks friends	8
Will not try	7
Unreliable	7
Lives in own world	5

More children from sole-parent families were thought by their teachers to be impatient(28 percent) or unreliable (19 percent) than children from two-parent homes (11 percent and 5 percent respectively).

Teachers' Relations With The Children's Parents

Most of the ECE teachers had been positive about their relationship with the children's parents. Only 15 percent of these relationships were described as less than good. The primary school teachers described the same proportion as less than good—but not the same parents. Relationships between teachers and parents stayed less than good at both ECE centre and school for only 9 parents in the study. This indicates that the relationship between parent and teacher is not determined by parents alone. Teachers change, as does the teaching situation, and in some cases the home situation changes too.

Overall, the teachers described their relationship with the child's main caregiver as follows: very good or excellent, 48 percent; good, 35 percent; satisfactory, 14 percent; difficult, 1 percent. The partners of all 4 parents with whom the teacher thought she or he had a difficult relationship were never or only rarely seen by the teacher.

Almost two-thirds (63 percent) of the children's teachers said they regularly saw the child's main caregiver (usually, but not always, the mother), another 23 percent saw her or him sometimes, and only 10 percent rarely. Only 3 percent of the teachers thought they had never met the child's main caregiver.

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[32] Thus when we were investigating American instruments to assess children's social skills and communication, we found New Zealand early childhood and primary teachers were not prepared to use rating scales which focussed on negative behaviours.

The greater the rate of the child's progress over their first year at school, the more regularly the teacher saw the child's main caregiver (from 51 percent of children making slow progress to 76 percent of children making very good/excellent progress).

The higher the family income at age 5, the more likely it was that teachers would see the child's main caregiver, usually the mother, on a regular basis (from 72 percent for the highest income group to 50 percent for the lowest income group). However, parents whom the teacher had never met or only rarely met were just as likely to be from a high income home as a low income one.

More sole parents (19 percent) were seen only rarely by the child's teacher, compared with main caregivers in two-parent families (8 percent). Teachers were also marginally less likely to see Pacific Island parents on a regular basis.

Teachers were unlikely to see both parents of a child regularly: 16 percent said they did so, whereas 27 percent saw the other parent sometimes, 23 percent rarely, and 34 percent had never met the child's other parent. Teachers were more likely to have met the other parent of the children from the highest income group (74 percent) compared with all other groups (35 percent). However, there was no difference among the other income groups, even though 80 percent of the lowest income group were sole parents. So sole parentage does not necessarily mean that only one parent is taking an interest in the child's education.

The importance of regular contact in the relationship between teacher and parent is borne out by the fact that 81 percent of the parents with whom the teacher felt she or he had a very good to excellent relationship were parents who were seen regularly, compared with 52 percent of those with whom the relationship was good, and only 38 percent of those with whom the relationship was satisfactory. Teachers more frequently described their relationships with parents from the highest income group (the group whom they saw most regularly) as very good or excellent (61 percent), than their relationships with parents from the lowest income group (37 percent).

What effect did teachers think their relationship with the child's parents had on the child's school experience? Close to half (44 percent) of the children's teachers thought that parental interest secured the child's confidence in themselves; 31 percent mentioned joint work on children's problems; 30 percent said they gained useful knowledge about the child from their relationship with the parents; and 16 percent simply said it was helpful without further comment. These responses are similar to the pattern of responses to this question from the children's final ECE teachers, with two exceptions. ECE teachers were more likely to mention support or reassurance—not only for parents, but also for the teacher's own role in the child's life.

There were no clear associations between the teacher's perception of their relationship with the parent, and parental comfort in talking to their child's teacher, or with parental reports of working on a child's problems with the teacher.

Children's Perceptions Of Their School Experience

The information in the table below compares children's favourite and least favourite activities at school and at their last early childhood education centre. This gives us some idea of differences in their educational experience, as well as of any changes in the overall pattern of children's preferences.

Physical activity remains a favourite activity for a third of the children in both settings (more so for boys than girls). School decreases the amount of aesthetic-creative work, and increases literacy work, inspiring more children to name this as either a favourite or a least favourite activity. Girls mentioned literacy and aesthetic-creative activities as their favourite activities twice as often as boys did.

Table 46

Children's Favourite and Least Favourite Activities at Their ECS and School

Activity category	ECS Age 5 (n=306)	School Age 6 (n=298)	ECS Age 5 (n=306)	School Age 6 (n=298)
	Favourite %		Least Favourite %	
Aesthetic-creative (e.g. painting)	35	15	9	4
Outdoor physical activity	33	34	10	10
Mathematics/science related (e.g. blocks, water play)	25	10	12	6
Social play/interaction (e.g. playing/not playing with friends)	10	14	8	1
Sociodramatic (e.g. family corner, dress ups)	10	2	5	1
Literacy related	6	31	4	28
Do not know	3	0	7	4
Nothing/I like everything	-	-	18	19
Being hurt	-	-	8	13
ECS routines/rules	-	-	4	-
Waiting	-	-	1	6
Being told off	-	-	0	4
Work	-	-	0	3

Literacy related activities had a slight tendency to be mentioned less as family income declined (from 37 percent of children in the highest income bracket to 18 percent of those in the lowest income bracket). Children from families in the highest income bracket were less likely to mention social play or interaction. Asian children were the most likely to mention literacy related activities (67 percent). Children whose mothers had a seventh form qualification were twice as likely as others to find nothing that they disliked about school.

Children's Helping Activities

As at age 5, some children saw their own schoolwork as helping the teacher by answering her or his questions. Māori and Asian children were more likely to say schoolwork was a form of help. At age 6, more children were either helping other children or seeing this activity as "help" than at age 5—perhaps because more activities at school are individual. Children who mentioned helping other children were most likely to say that answering the teacher's questions was a form of help too.

Table 47

Children's Helping Activities at School and Early Childhood Education Centre

Activity	At ECE (n=307) %	At school (n=298) %
Tidying up/cleaning	42	40
Helping other children	13	29
Setting up/putting out	7	10
Cooking	8	0
Answering teachers' questions	0	8
Messages	0	7
Nothing	8	7

Boys were three times as likely as girls to feel that they gave no help in the classroom, though the proportion was still small (11 percent of boys).

Children from current sole-parent families were more likely (49 percent) to mention helping

other children than their peers from two-parent families (25 percent). Children whose mother's highest school qualification was School Certificate or none were also twice as likely as others to mention helping other children.

Children's Responses To Difficulty With Their Work

At age 5, we asked the children how they would respond to difficulties encountered when making things. At age 6, we extended this question to school work in reading, writing and mathematics.

Table 48

Children's Responses to Difficulties in Their Work

n=298 Response	Making Something %	Reading %	Writing %	Maths %
Request help from teacher	43	27	27	29
Request help from peer	36	20	10	30
Keep trying	14	11	19	22
Sound letters out	-	27	25	-
Choose something easier	1	10	2	9
Use contextual strategy	-	9	-	-
Do something else	10	2	3	3
Look at dictionary/words on wall	-	3	22	-
Give up/wait for teacher/do not know	2	2	2	7
Never have a problem	1	1	0	2

When children encountered difficulty in their school work, few used the same response(s) to different situations. Only 5 percent of the children requested help from their teacher in all 4 of the areas we asked about, 2 percent looked to their peers for help, 1 percent persisted in all 4 areas, and 1 percent found something easier, gave up, threw the work away, or didn't know what they would do.

When we looked at related areas such as reading and mathematics, we still found little commonality of response: 11 percent would ask for help from their teacher for both reading and writing, 5 percent would ask their peers, and 4 percent would keep trying. If the children's reports of their classroom strategies in the face of difficulty are reliable, then this does suggest that their strategies are specific to the context and do not get used across the board.

Literacy

There were some associations between children's average scores on the two Literacy competency measures, and their strategies in the face of difficulty in learning to read and write (a fairly common experience). Specific strategies were associated with higher scores; choosing a less demanding activity or giving up were associated with lower scores.

Children who sounded words out, used a contextual strategy or requested help from the teacher when they had a *reading* difficulty had somewhat higher average marks on Word Recognition than those who looked to their peers, found an easier book, gave up, did something else, or did something aggressive. A slightly different pattern emerged with regard to Invented Spelling. Children who sounded words out had the highest average score, followed by those who used a contextual strategy. But there was no difference for the other strategies.

Children whose approach to a *writing* difficulty was to change their topic, do a drawing, or give up had lower average scores on Word Recognition than others. The highest average scores went to those who looked at dictionaries or persisted. These were the children who also had higher average scores on Invented Spelling. The lowest average scores on Invented Spelling went to children who requested help from their teacher, turned to drawing, or gave up when faced with a writing difficulty.

Mathematics

Mathematics competency scores at age 5 were the most consistent predictor of scores on other competency measures at age 6, particularly Literacy. So we also looked at children's responses to mathematics difficulties in relation to their performance on our two Literacy measures. We found no associations. This may mean that using children's reports of their strategies without further exploration or observation does not give us sufficient or sufficiently accurate data. It may also mean that the relationships found between children's levels of achievement on our Mathematics and Literacy measures depend more on knowledge than on the particular strategies children use when confronted with difficulty.

We also looked at associations between Mathematics scores and strategies in dealing with difficulties in doing mathematics at school. Children who said that they did something else if they were trying to do a mathematics activity and found it hard tended to score less well than others on our Mathematics competency measure. But there was otherwise no relationship between the different responses made by children to any difficulty in mathematics they encountered, and their scores on our Mathematics measure. Children who gave up and waited for the teacher did just as well as children who persisted, turned to another task, or requested help from the teacher.

Making Something

Children's strategies for dealing with difficulties encountered in making something did remain consistent between 5 and 6 years old, with *all* the children who gave one strategy at age 5 giving the same strategy again at age 6. However, our hypothesis that children use (or think of) different strategies for different kinds of schoolwork is given some support by the finding that children's strategies at age 5 in making something show only a limited association with their strategies in reading, writing, and mathematics at age 6.

Children who had persisted in trying to make something at age 5, or had sought help from another child, were more likely than those who had sought adult help or had given up a task to use sounding out strategies to help them solve problems with reading at age 6. Those who had persisted at age 5 were also more likely than others to use a dictionary to help with their writing at age 6. Both of these strategies were associated with higher average scores on our Literacy measures.

No similar association appeared between problem-solving in making something at age 5, and strategies for mathematics problem-solving at age 6.

Girls were more likely than boys to use a sounding out strategy when they had a reading problem; and boys were more likely than girls to turn to an easier book. With mathematics problems, girls were almost twice as likely as boys to request help from the teacher.

When Asian children had difficulty with making something, they were more likely than others to persist. Pacific Island children were the most likely to turn to another activity. Asian children were also most likely to use sounding out strategies with reading.

Children whose mothers had a seventh form qualification were twice as likely as others to request help from the teacher with reading problems; those whose mothers' highest school qualification was School Certificate, or none, were most likely to use contextual strategies.

The group most likely to turn to another activity if they ran into problems making something were children from families in the low income group. Children from the lowest income group were the least likely to persist if they struck a reading problem. But there was no association between income group and use of other strategies in reading. Children from families in the top two income groups were more likely than others to use a dictionary or look at words on the walls if they struck a problem in writing.

Future Education

Parental ambitions for their child's education became more specific when their child reached age 6. When the children were aged 5, 29 percent mentioned tertiary study; at age 6, 45 percent did. Most of the rest wanted their children to "go as far as they could" (45 percent). Only 6 percent thought it would be enough for their child to complete secondary school.

Was there anything that could stop children from getting the kind of education their parents wanted for them? Lack of money was mentioned by 44 percent of the parents, much the same proportion as when the children were aged 5. But the child's own desire or choice was mentioned more frequently at age 6 (37 percent) than at age 5 (23 percent). Other reasons, each given by 5–8 percent of parents, were the child's health, their attitude, their ability, and changes to government policy. A few parents also mentioned the possibility of pregnancy, a lack of support from their partner, family problems, poor quality teaching, inappropriate curriculum, or fears that the preferred option might not be available.

Parents most likely to specify a tertiary education came from the highest income group (56 percent), or the low income group (49 percent), compared with 39 percent of the middle income group, and 33 percent of the lowest income group. The proportion of those who specified the end of secondary school as an education goal for their child tended to rise as income fell: 2 percent of the highest, 10 percent of the lowest, and 12 percent of the low income group. A similar pattern showed among those who said simply "the best", or "everything": 3 percent of the highest income group, and 10 percent of the lowest. This suggests that the high proportions of the two low income groups not specifying tertiary education may be related to their own lack of experience of tertiary education, or concerns about financing such study, rather than low ambitions for their children.

And indeed, the lowest income parents were most likely (77 percent) to give money as the main obstacle to their child's getting the education they would like for them, compared with a much lower proportion (33 percent) of the others. The lowest income group parents were also least likely to cite the child's own choice as an obstacle to their full educational achievement (18 percent, compared to 40 percent of others).

A higher proportion of mothers whose highest school qualification was University Entrance or School Certificate, or who had no qualification (8 percent), specified the end of secondary school, compared with those with higher qualifications (1 percent). This group of mothers were also more likely to say "the best", without specification (9 percent compared with none in the more highly qualified group). There were no associations between mother's educational level and the obstacles they saw to their child getting the education they desired for him or her.

The only difference related to gender was that more parents of girls (62 percent) than of boys (47 percent) wanted them to go as far as they wanted to go.

There were no differences associated with ethnicity in relation to parents' aspirations for their child's education. However, Pacific Island parents saw more obstacles than did others, especially with regard to money, government policy changes, health and family issues.

Choice Of Secondary School

When the children were 5, 37 percent of parents had decided which secondary school their child would attend. The slight decrease in sample size, from 306 to 298, accounted for the apparent slight increase to 39 percent at age 6. Between the two ages, there was an increase from 6 to 11 percent in the proportion of parents who were looking at two or more schools. Parents of boys were more likely (45 percent) than parents of girls (31 percent) to have decided on their child's secondary school. Only 2 of the study parents thought they had no choice in the matter (both from the $20-30,000 income bracket).

The similarity of the overall figures at age 5 and age 6 masks some movement: 74 percent of those who had not decided on a secondary school when their child was 5 had still made no

decision a year later, 19 percent had decided, and 7 percent were considering two or more schools. Of those who had made a decision when their child was 5, 67 percent had not changed it, 18 percent were now undecided, and 14 percent were considering two or more schools. Those who were considering two secondary schools a year before were now evenly spread among those who were still considering two schools, those who had decided, and those who had not. A fifth (20 percent) of the highest income group were considering two or more schools, compared with 6 percent of others.

The only other factor which was associated with whether or not the choice of secondary school had been made by the end of the child's first primary year was mother's qualification levels. Over a third (36 percent) of mothers with University Entrance or a higher school qualification had made this choice, compared with 13 percent of those with School Certificate passes or no qualification.

The next table shows the characteristics of the secondary schools already chosen by the parents by the time their child was 6 years old, with a comparison of national and regional figures for secondary schools.

Table 49

Characteristics of Secondary Schools Already Chosen or being Looked at by Children's Parents

Characteristics	Sample (n=111)[33] %	Wellington Region (n=38)[34] %	National (n=336)[35] %
Affiliation			
State	64	68	77
Integrated	27	27	19
Private	8	5	4
School Decile			
1	2	3	7
2	7	8	12
3	5	5	11
4	2	10	15
5	14	10	15
6	8	13	13
7	2	3	11
8	19	10	5
9	33	16	8
10	9	21	5
Roll Size			
100–199	1	3	5
200–299	8	11	10
300–499	9	22	22
500–750	26	22	24
750+	56	38	38
Location			
Urban	78	76	62
Provincial	16	19	20
Small town	5	5	10
Rural	–	–	8
Proportion of Māori Enrolment			
<8%	48	29	33
8–14%	27	29	20
15–29%	19	34	25
30%+	7	9	22

[33] Parents.

[34] Secondary schools.

[35] Secondary schools.

The choices of the sample parents differ from the Wellington region's spread of secondary schools, in relation to school decile, size, and proportion of Māori enrolment. Decile 8 and 9 schools are over-represented among those chosen by the sample parents, but not decile 10 schools. There is a noticeable over-representation of the largest schools. Sample preferences may reflect the actual location of schools in relation to family homes, as much as other factors.

Did different groups of parents make different choices? Almost twice as many parents in the highest income group (59 percent) chose decile 9–10 state schools, compared with all other groups (33 percent average). Only 5 percent of the highest income group chose decile 1–4 schools, compared with 20 percent average of all other groups. But the proportions choosing decile 5–8 schools were much the same across all income groups.

Only 12 parents chose a private secondary school for their child; 11 came from the highest income group, and the twelfth from the second highest income group. There was no link between family income and the choice of a state integrated school.

Mothers who had left school with at least a sixth form qualification were more likely to choose a decile 9–10 school (56 percent) compared with those who left with School Certificate only, or no school qualification (27 percent). Sole parents' choices showed much the same patterns as those made by two-parent families.

Pakeha and Māori parents were just as likely to choose decile 9–10 secondary schools, but more Māori were choosing decile 1–2 schools. Numbers of the other ethnic groups in our sample are small, but some trends are apparent. No Pacific Island families chose a decile 9–10 school. Decile 9–10 schools were the main choice of Asian families. The trend for more Pacific Island children to attend state integrated schools at primary level continued in the parents' choice of secondary school for their child.

Reasons Given For Choices

Reasons for choice of secondary school remained much the same as at age 5. However, one reason was mentioned markedly more often than at the beginning of the child's first year at school: how close the school was to the home. This could reflect both ease and difficulty in getting children to school during that first year. It will be interesting to see whether this factor looms as large by the time the children turn 8.

Table 50

Reasons for Parental Choice of Secondary School

Reason	Percentage of those already decided	
	When child aged 5 (n=115) %	When child aged 6 (n=111) %
Reputation	63	68
Proximity to home	48	61
Previous family attendance	41	43
School type	32	36
Curriculum/activities	14	15
Discipline/school climate	11	14
Peer group/friends	0	12
School/class size	9	9
School facilities	10	10
Cost	5	6

A recent study of parental preferences for intermediate and secondary schooling in the Hutt Valley (Market Research Report for Ministry of Education 1997) found that location, previous family attendance, and reputation/standard of education[36] were the top 3 reasons given by parents of 8 to 9 year olds for their choice of intermediate school, a similar pattern to that given here. However, in that study the proportions were much lower for each reason (ranging from 39 percent to 25 percent). Similar proportions mentioned discipline or school climate, friends, school or class sizes, and cost.

Parents of children in form 1 and 2 were asked about their choice of secondary school. Their main reasons included standard of education (37 percent), location (32 percent), reputation (30 percent), and previous family attendance (27 percent). Again, this provides a similar pattern to ours, but in much lower proportions. There were comparable figures for the other reasons mentioned by the parents in the Competent Children study.

Pacific Island parents were more likely than others to choose their child's secondary school by its type (which fits with the greater proportion of Pacific Island children attending integrated schools in this study), or because of family connections. There were no links between ethnicity and the feeling that one had no choice about the child's school.

Summary

The information we gathered on the children's first year from parents, teachers, and children provides useful insights into the process of making the transition to school, and the factors which appear to have a bearing on parental satisfaction. Comparisons with data collected a year earlier enlarge our understanding of children's approaches to learning.

Few of the study children attended private schools, but the 12 who did so were mainly from the highest income families. Children from these families were also the most likely to be attending decile 9–10 schools. Pacific Island children were more likely than Māori or Pakeha/European children to be attending integrated schools.

Six percent of the children changed schools during the year. The main reason was a change of housing for the family. Children in the highest income families were least likely to change schools. Those who changed schools were less enthusiastic about school, and took longer to settle into school.

Most children were enthusiastic about starting school, though 23 percent took some time to settle in. We found support for the proposition that boys find the transition to school harder than girls (Elley 1992). Only 9 percent of the children had less than good attendance records. Parents felt that early childhood education had made a positive contribution to their child's transition to school, particularly through the child being used to mixing with other children, working with adults, and accustomed to the kinds of routines and activities that occurred in school. Having some continuity of relationships with other children who had attended the same early childhood education centre also helped.

Most parents were comfortable talking to their child's teacher about their child, and 57 percent had worked with the teacher to resolve some problem encountered by their child. Such problems were mainly to do with the child's happiness and social wellbeing, or their progress at school. Almost two-thirds of the teachers (63 percent) saw the child's main caregiver regularly. Only 3 percent of the teachers thought they had never met a study child's parent. The greater the child's rate of progress over the first school year, or the higher the family income, the more likely it was that the teacher had regular contact with the child's parent. It was usual for regular teacher-parent contact to occur with only one parent, regardless of family type.

Parents saw their children become more confident and independent over their first year at

[36] Standards and reputation were given separately in the Lower Hutt study, 25 and 19 percent respectively (44 percent in total).

school (too confident, said 13 percent!), more socially adept, more enthusiastic about books, reading, and writing, and accumulating more general knowledge. Most (68 percent) were satisfied with their child's progress over their first school year, but 25 percent were satisfied only with some aspects of their child's progress and not with others, and 7 percent were dissatisfied.

Parents of the 20 children attending private schools showed much more dissatisfaction (25 percent), and parents of children attending high decile schools also showed less satisfaction, partly because more of these parents felt their children were insufficiently extended, unconfident, or unhappy. Yet on our competency measures, the performance of children from high decile schools tended to be higher than that of others (but not always), and that of children attending private schools was equal to others on all competencies bar one, where they performed better. For some parents, satisfaction levels appear to reflect expectations as much as their child's actual achievements. This has some important implications for educational policy focussed on school choice as a means of improving student performance.

While children's scores on our competency measures bore some relation to their parents' level of satisfaction, and the reasons for it, they bore a closer relation to teachers' perceptions of the children's overall progress. Almost half the 21 parents who were dissatisfied had children whose teachers described their initial school progress as slow, compared with 31 percent of the parents with reservations, and 10 percent of the satisfied parents. Children whose parents were dissatisfied with their progress showed some tendency to be among the lowest scorers on our competency measures. Children whose parents described them as unhappy or unconfident at school, or insufficiently extended, showed a tendency to score somewhat lower than those whose parents were satisfied with their progress, or who had reservations about some aspect of school provision. Yet these "unhappy, unconfident or insufficiently extended" children were just as likely to be rated by their teachers as making excellent or very good progress as those whose parents were satisfied with their progress.

We found that children whose parents thought they were not being sufficiently challenged in classroom work in general scored at a lower level on our competency measures, compared with other children. Though our material cannot tell us whether this was indeed due to a lack of challenge in the classroom, it does indicate real grounds for parental concern about children's progress, and the need for teachers to address these concerns.

Boys were less enthusiastic about starting school than girls, less likely to show enthusiasm about literacy activities, and their parents were less satisfied with their school progress. Boys' parents were more likely to discuss their child's achievement with a teacher. Boys scored lower than girls on Literacy, and on Social Skills, Perseverance, and Communication, but not on Mathematics.

We found some support for teachers' perception that parents rely on reading book levels to gauge children's initial school progress (Wylie and Smith 1995). It appears that both teachers and parents use literacy related activities as a prime guide to children's progress, though we found it was performance on the Mathematics competency at age 5 that was most predictive of children's overall performance at age 6. For high level readers, reading book levels were a good gauge of their score on the Burt Word Recognition measure. There was also a generally positive association between reading book level and Burt Word Recognition score, though similar proportions of children from adjacent reading book levels achieved the same scores. The social skills which assist the transition to school also mattered to both teachers and parents.

The study children used different strategies for problem-solving in different kinds of schoolwork. Their strategies did not appear to be generalisable across curriculum areas. Going by children's scores on the Burt Word Recognition measure, we found that sounding out words, contextual strategies, and requesting help from the teacher appeared to be more useful strategies in reading. Persistence, and checking words in a dictionary or from wall charts were more useful in writing. Children who gave up or tried something easier tended to have lower scores on both Burt Word Recognition and Invented Spelling.

Almost half the parents now wished their child to go on to tertiary education after they left

secondary school, up from 29 percent at age 5. Those with family incomes of less than $30,000 were slightly more likely to signal the end of secondary school as their highest aspiration for their child's education. This group was also the most likely to see money as the main obstacle to their child getting the education they would like them to get. Pacific Island parents saw the most obstacles to their child getting the desired education.

A total of 39 percent of the parents had decided which secondary school their child would attend. While this is much the same proportion as a year before, some parents who had come to a decision then now felt undecided, and 19 percent who had not made the decision when their child was 5 had now made it. Only 2 parents felt they had no choice of school. Twice as many parents in the highest income bracket chose decile 9–10 schools as others. Private school choice at secondary level, made by 12 parents, was almost entirely confined to the highest income bracket. The main reasons behind secondary school choice when the child was aged 6 were school reputation, proximity to home, previous family attendance (which is often a criterion of school enrolment schemes where schools cannot take all those who apply), and school type.

CHAPTER 6

CHILDREN'S COMPETENCIES AND THEIR EARLY CHILDHOOD EDUCATION EXPERIENCE

In this chapter we analyse the associations between the children's competency levels and the study children's early childhood education experience, which was described in some detail in the report *Competent Children at 5—Families and Early Education.*

We start by summarizing the associations which were found at the time the children were still attending early childhood education. At that stage, early childhood education experience appeared to make a positive difference for children's scores on 6 or 10 competencies we measured:

- Mathematics
- Motor Skills
- Perseverance
- Communication
- Social Skills with Peers
- Social Skills with Adults

The 6 aspects of early childhood education (ECE) which made a positive difference were:

- Starting age
- Length of ECE experience
- ECE socio-economic mix

and a high quality rating on ECE:

- Programme/activity
- Staff:child interaction
- Resources and safety

We also found associations with the kinds of activities we observed the study children to be engaged in at the final ECE service they attended. Children who had low levels of interaction with other children, and lower levels of play than others, scored lower than others on Communication, Individual Responsibility, Social Skills with Peers, Social Skills with Adults, Motor Skills, and Curiosity. Children who spent more time exploring scored better on Mathematics and Logical Problem-Solving.

Our analysis showed that ECE experience could make a difference for children simply because of the range of experiences with other children which it makes available, within frameworks set by ECE teachers. This range of experience reflects the greater diversity of equipment and resources available, including teacher guidance, than would have been available to children at home.

We found no associations between children's competency levels at age 5 and the following aspects of early childhood education experience:

- the total number of ECE services attended by a child
- whether attendance at different ECE services was concurrent (2 or more services used at once) or sequential (2 or more services used in sequence)
- the ECE self-esteem quality rating
- parental satisfaction with staff communication about their child's experience in the child's final ECE service
- parental perception that their child's final ECE service attendance had some negative effects
- the level of parental involvement in their child's final ECE service.

Early Childhood Education Experience and Children's Competency Levels at Age 6

What associations between ECE experience and children's competencies could we expect to see after the first year at school when the children were 6? The overseas research literature, which tends to focus on cognitive competencies, gives equivocal findings (Wylie 1994, p 6–12). Where school is of comparable quality to the child's ECE service(s), and there is some continuity of pedagogical approach (for example, the child does not move into a heavily didactic environment from one which has emphasized activity and "play"[37]), then the gains of early childhood education are more likely to be maintained.

In New Zealand the first year at school tends not to be didactic, but to remain reasonably activity-focused. So discontinuities between ECE and school are more likely to relate to structure than to the curriculum or pedagogy. However, the number of children per teacher is higher, class sizes are larger for some children (but lower for those who attended kindergarten and some playcentres), there are many more children and adults in the larger school environment, and the day is more structured and time-bound.

In contrast to most of the overseas studies, we kept our focus on a broad spectrum of competencies as we follow the children through into school. Our analysis sheds more light on the enduring effects of early childhood education experience on cognitive competencies. It also widens and, we hope, deepens the field of the investigation into the effects of early childhood education experience by continuing to study children's social, communication and problem-solving skills.

As the children turned 6, we analysed those aspects of early childhood education which had shown associations with children's competency levels at age 5. We also analysed the ECE self-esteem quality rating. In addition we looked at one aspect of ECE provision which particularly concerns educators and policymakers: attending 2 or more ECE services at the same time (concurrent) and attending 2 or more services one after the other (sequential). Parental satisfaction with involvement in the child's final ECE service had shown no associations with children's competency levels at age 5, and was not analysed again at age 6.

At age 6, some of the associations found at age 5 between children's competency levels and their early childhood education were no longer making a contribution that was discernible through statistical analysis. But some associations were still there a year later, and some had strengthened. Other associations emerged for the first time at age 6.

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[37] Tina Bruce's analysis of "play" , or an experience-based approach to children's early learning emphasizes its capacity to develop exploration, persistence, innovation, representation, understanding of the function of rules, learning to take the part of others, and to integrate experience while challenging. (Bruce 1991). Comparisons of didactic and "play" based approaches find more gains for children from a play approach (Marcon 1990, Rothenberg 1990).

Starting Age at ECE

When the children were aged 5, we found an association between Motor Skills measure, and the age at which children had started ECE. Those who started when they were less than 2 years old were on average 4 percentage points ahead of those who started between 2 to 3 years old on Motor Skills, and 7 percentage points ahead of those who started after they turned 3 years old. But at age 6, we no longer found this association between ECE starting age and Motor Skills. Perhaps this was because we narrowed our focus to Fine Motor Skills only.

Instead, when the children were aged 6, what we found were 3 *new* indicative associations between children's competency levels on our Communication, Mathematics, and Logical Problem-Solving measures, and the age when they started ECE. The lowest level of each of these competencies was found in the group who started ECE at 3 years or later.

A child's starting age for ECE had a bearing on their competency levels at both age 5 and age 6. But did it have the same impact at each age? We found that the associations between the length of a child's early childhood education experience and their scores on our Communication and Mathematics measures were much stronger at age 6 than at age 5. The associations with their scores on our Logical Problem-Solving and Fine Motor Skills measures were also stronger.

But there was no clear overall advantage for children who started before they were 1 year old. So we cannot conclude that the earlier a start is made on early childhood education, the better it is for the child. However, we can suggest that starting early childhood education before the age of 3 in New Zealand is beneficial for some competencies. Moreover, there are apparently no disadvantages with regard to *any* competencies for children who begin ECE in their first year of life.

When we also allowed for family income at age 5,[38] or the number of children in the child's school class, or the proportion of English as a Second Language (ESL) children in that class, or the school type, we found that the age at which a child started ECE continued to make a difference in these 3 competencies.

Table 51

ECE Starting Age and Children's Competency Scores at Age 6

Starting Age at ECE → / Competency ↓	< 12 months old n = 127	12–23 months old n = 60	24–35 months old n = 60	> 36 months old n = 51	Probability
Communication	72.6	74.7	71.8	*66.9*	0.043
Mathematics	78.0	80.3	73.9	*72.0*	0.024
Logical Problem Solving	58.0	52.6	53.1	*50.4*	0.022

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

Allowing for family income at age 6,[39] we continued to find associations between a child's starting age at ECE and their score on the Mathematics and Logical Problem-Solving measures. But we no longer found an association between ECE starting age and Communication. Allowing for school decile rating, we continued to find an association between ECE starting age and Communication and Logical Problem-Solving, but not Mathematics. Allowing for the school socio-economic mix,[40] we found ECE starting age was more weakly associated with

[38] While there were children in every income group who started ECE before 12 months of age, their proportions were greater for the two higher income groups.

[39] We modelled family income at both age 5 and age 6 to see if the improvement for some families had a different impact.

[40] Socio-economic mix includes private schools, whereas decile rating applies only to state and integrated schools.

Communication, and there was no association with Mathematics. But the association with Logical Problem-Solving remained, and a new (indicative) association emerged between ECE starting age and Curiosity.

We can conclude that starting ECE before the age of 3 is beneficial for 6 year old New Zealand children's competency levels in Communication and Logical Problem-Solving, irrespective of their family income, or school and class resources. Starting before the age of 3 is also beneficial for Mathematics competency levels at age 6, irrespective of family income. However, school socio-economic mix appears to "wash out" the positive contribution to Mathematics competency levels made by starting ECE before age 3.

Length of ECE Experience

At age 5, the total length of children's ECE experience (not counting periods when they stopped) was associated with differences in their Mathematics competency levels. Children who went to ECE for 48 months or more were on average 6 percentage points ahead of those who went for 36–47 months in total, 9 percentage points ahead of those who went for 24–35 months, and 11 percentage points ahead of those who went for less than 24 months. Children who went to ECE for more than 36 months were on average 6 percentage points ahead of children with less ECE experience on Motor Skills.

At age 6, total length of ECE experience had a broader impact. There were now 3 competencies showing significant associations with it, and 3 showing indicative associations.

The next table shows that children with ECE experience of more than 48 months scored higher on Logical Problem-Solving and Individual Responsibility. Those with more than 36 months scored higher on Communication, Mathematics, and Word Recognition. Those with more than 24 months scored higher on Fine Motor Skills.

Table 52

Length of ECE Experience and Children's Competency Scores at Age 6

Length of ECE → Competency ↓	ECE length level 1	ECE length level 2	Split-point of the 2 levels for ECE length in 2 levels	Probability
Logical Problem Solving	*52.4*	**58.0**	48months	0.005
Individual Responsibility	*77.8*	**81.8**	48months	0.029
Communication	*68.3*	**73.7**	36months	0.002
Mathematics	*73.1*	**78.4**	36months	0.008
Word Recognition	*16.3*	**19.6**	36months	0.020
Fine Motor Skills	*42.9*	**51.7**	24months	0.014

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

When we allowed for other factors, such as family income, there were some changes to the strengths of the associations between length of ECE and competency levels at age 6. One interesting finding was that family income at age 5 had stronger associations than family income at age 6. But length of early childhood education clearly made a contribution of its own at age 6. This association was broader than it had been at age 5.[41]

Allowing for school resources did not alter the associations between length of ECE experience and most of these competencies. However, allowing for school socio-economic mix did "wash

[41] This is consistent with Fergusson, Horwood & Lynskey's (1996) finding of significant associations between ECE duration and school achievement and cognitive ability up to 13 years of age in their earlier Christchurch study. They found a consistent trend for mean test scores to increase as duration of attendance increased, particularly favouring those children who had 3 years or more ECE. A Swedish study (Broberg et al. 1997) also found that ECE duration (and quality) mattered—again, with 3 years or more as the critical point.

out" the impact of length of ECE experience on Mathematics competency levels. The same thing had happened for the impact of ECE starting age on Mathematics competency levels.

Allowing for class size showed that children who were in classes of 21 or fewer, and who had had less than 36 months ECE experience, scored as well on Mathematics as those who had had longer ECE experience. In other words, small class sizes can "make up" for shorter ECE experience, at least with regard to competency levels in Mathematics.

Patterns of ECE Experience

At age 5, there were no associations between different patterns of ECE experience and children's competency levels.[42] At age 6, we found 2 competencies showing such associations—Logical Problem-Solving and Perseverance.

Table 53

Patterns of ECE Experience and Children's Competencies at Age 6

ECE Patterns → Competency ↓	Combination of 2 or 3 ECEs* n=132	Single ECE n=89	Sequential— 2 or 3 ECEs n=77	Probability
Logical Problem-Solving	**57.8**	52.9	*51.2*	0.012
Perseverance	64.1	**68.7**	*62.1*	0.04

* At any one time.

The **highest scores for each competency are in bold type,** the *lowest* in *Italics*.

It could be expected that attending more than one (but usually only two) ECE services at once could be stressful for a child, and therefore distract them from gaining the most from their experiences. Yet we found that children who had combined two or more ECE services at some stage in their early childhood did just as well as others on most competency measures, and better on Logical Problem-Solving. Using two or more services at once brings logistical problems for parents. But for children, coping with two or more different sets of children, adults, resources and rules at the same time may mean having to cope with the fact of difference, and to search out principles behind the differences.

This interpretation does not fit so well when we look at the findings on Perseverance. Scores on the competency were lower for those combining two or more services at once than they were for those attending only one.

Are these associations in fact due to different patterns of family resources, relating to different patterns of ECE experience? Adding family income at age 5 reduces slightly the negative effect of combination on Perseverance scores. It also removes the association between combining services and Logical Problem-Solving. Adding family income at age 6 weakens the association between attending two or more services at once, and Logical Problem-Solving. However, it strengthens the association between combining services and scoring lower on Perseverance.

For Mathematics, a different picture emerged. At age 6, on the Mathematics measure, children from families in the lowest income bracket did best if they had gone to two or more ECE services at once, middle income family children did best if they had gone to one service after another, and high income family children did best if they had gone to just one service.

When we allowed for two of the school resources factors—school socio-economic mix and the proportion of ESL children—we found that children who had gone to two or more services at the same time continued to have better scores for Logical Problem-Solving, regardless of the resources of the schools they went to. But these school factors washed out the negative association of combining services with Perseverance scores. Overall, we can say that particular combinations of ECE experience before starting school do appear to affect scores on these 2 competencies at age

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[42] Smith, Inder and Ratcliff (1993) found no differences for New Zealand children aged 7 to 9, related to the pattern of ECE experience or the type of service attended, in their interactions with their peers and teachers.

6, irrespective of family income and school characteristics.

Final ECE Type

At age 5, there were associations between 4 of the competency measures and the type of ECE attended. Children attending A'oga Amata (Samoan immersion preschools) tended to score lowest on Communication and Social Skills with Adults. Children who attended kindergarten scoring the highest on the Social Skills with Adults measure. Indicative associations were found between the final type of ECE and Social Skills with Peers (kindergarten children scored highest, A'oga Amata children scored lowest), and also Curiosity (kindergarten children scored the lowest). But these associations all disappeared when we took into account whether or not a child had English as their second language.

After the children's first year at school, none of these 4 competencies showed any associations with final ECE type. However, a significant association emerged with another competency: Perseverance. Children who had attended playcentre scored more highly than those who had attended kindergarten or private preschools. This was the only competency to show a difference related to ECE type.

This association remained, and was in fact strengthened, by allowing for family income. It was slightly weakened by allowing for school socio-economic mix. So the difference between playcentre and other types of ECE is making its own contribution to the level of children's scores on Perseverance at age 6.

ECE Quality Ratings

We used 4 ratings of ECE centre quality for this study: staff:child interaction, programme/ activity, self-esteem, resources and safety. Added together, these gave a "total quality" score for each ECE centre visited and rated when the children were 5.

At age 5, there had been no associations between competency levels and the total quality score for the child's final ECE centre. This might have been due to the fact that the total quality score included one rating—for self-esteem—which showed much less internal consistency than the others. This was why we decided to use the four ratings, rather than the quality score, in our analysis of competencies at age 6.

Staff:Child Interaction

At age 5, the rating for quality of ECE staff:child interaction had shown significant associations with 2 competencies. On Social Skills with Peers, children at highly rated centres were 2 percentage points ahead of their peers at mid rating centres, and 7 percentage points ahead of those at low rating centres. On Literacy, children at high rating centres were 7.5 percentage points ahead of those at mid rating centres, but only 3 percentage points ahead of those at low rating centres.

At age 6, there was no association between the final ECE centre's rating for quality of staff:child interaction, and the children's Social Skills. But this rating continued to be associated (at indicative levels) with Literacy—both Word Recognition and Invented Spelling. Children who had attended high rating centres were 5 percentage points ahead of those who had attended other ECE centres on the Word Recognition measure, and 10 percentage points ahead on the Invented Spelling measure. There was a new association with Perseverance and also with Individual Responsibility.

At age 6, the highest score for 3 out of these 4 linked competencies was achieved by children who had been at final ECE centres rating in the upper quartile for staff:child interaction. And 3 of the 4 lowest scores were among the children who had been at centres rating less than the median for staff:child interaction.

Allowing for family income at age 5 and age 6 removed the association with Word

Recognition, but all other associations remained. Allowing for school decile did not remove the association with Word Recognition, but allowing for school socio-economic mix (which was very similar to school decile) did remove it.

Class size had an effect on these findings. Children who had been at ECE centres rating in the lowest quartile for quality of staff:child interaction scored better than other such children on the Perseverance and Social Skills with Adults measures if they were in a school class with fewer than 21 children. This echoes the finding with regard to Mathematics, length of ECE experience, and class size. Smaller class sizes at school can make a positive difference for children whose ECE experience is shorter, or of lower quality, in terms of staff:child interaction.

Table 54
Final ECE Centre Staff:Child Interaction Quality Rating and Children's Competencies at Age 6

Score Staff-Child Interaction quality rating of ECE → Competency ↓	bottom quartile <66.7 n=76	66.7–72.8 n=72	72.8–81.3 n=73	top quartile 81.3–100 n=77	Probability
Perseverance	63.0	66.8	*61.2*	68.7	0.034
Individual Responsibility	*76.3*	82.5	77.3	81.6	0.050
Literacy:					
Word Recognition	17.5	*16.4*	18.1	**21.8**	0.048
Invented Spelling	*54.1*	56.8	56.1	**66.1**	0.013

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

Programme/Activity

At age 5, children whose final ECE service received a high score on our programme/activity rating had scored better than others on our measures of Social Skills with Peers, Perseverance, and Communication. But these associations had disappeared by the time the children were 6.

Self-Esteem

Our analysis at age 5 had found no associations between the rating for quality of self-esteem at the final ECE centre and the competency scores. This may have been because the rating was done using items which were too different from each other. These items were:

- Children are allowed to complete activities
- Children co-operate and support one another
- Activities are not sex-stereotyped
- Tikanga Māori is evident
- There is recognition of different cultures.

In our analysis at age 6, we treated each of these items separately, and found only one association. Children whose final ECE centre scored in the top quartile of the "Children are allowed to complete activities" were 6 to 8 percentage points ahead of others on the Perseverance measure at age 6 (an indicative association, $p=0.035$).

Resources and Safety

At age 5, children at ECE centres rating highly for the quality of resources and safety had been ahead of their peers in centres rating low, with (significant) differences of 7 percentage points each on Perseverance and Communication, 9 percentage points on Social Skills with Peers, and a difference of 6 percentage points (indicative) on Social Skills with Adults. But no associations were discernible between this quality rating and the children's competency levels at age 6.

ECE Socio-economic Mix

At age 5, we had looked at the relationship between the quality and the socio-economic mix of the children's final ECE centres. However we did not look at the relationship between socio-economic mix and competency levels. When work for this current phase, at age 6, revealed the size of the impact which school socio-economic mix was having on children's competency levels, we decided to analyse ECE socio-economic mix and competency levels both for age 5 and for age 6.

At age 5, children whose final ECE centre served mainly low income children scored significantly lower in 5 competencies, and indicatively lower in 2 competencies. The gap in the average scores of children attending such centres was particularly wide for Mathematics and Literacy.

This pattern of associations remained at age 6, with two exceptions. The associations with Motor Skills and Social Skills with Peers no longer appeared, and a new association with Social Skills with Adults emerged. The highest scores all came from children who had attended ECE centres in middle income communities.

Table 55

Final ECE Centre Socio-economic Mix and Children's Competencies at Age 6

Socio-Economic Mix of ECE → Competency ↓	Middle n=117	Wide n=86	Low-Middle n=60	Low n=39	Probability
Perseverance	**68.2**	66.2	*59.3*	60.8	0.007
Social Skills with Adults	**77.2**	72.3	*69.3*	73.3	0.017
Communication	**75.7**	70.0	*68.5*	69.5	0.005
Mathematics	**80.6**	75.2	76.1	*68.7*	0.001
Literacy:					
Word Recognition	**21.7**	15.9	18.4	*14.8*	0.001
Invented Spelling	**67.9**	51.7	56.1	*49.0*	2.2×10^{-7} ①
Logical Problem Solving	**58.6**	54.8	53.1	*46.3*	0.001

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

① i.e. p = is close to 0

So the socio-economic mix of the children's final ECE service appears to have enduring effects on children's competency levels. But do these remain at the same level at ages 5 and 6? The next table compares the percentage point difference between the average scores at age 5 and age 6 of children who attended ECE centres serving mainly low income communities, and those who attended centres serving mainly middle income communities. At age 6, the difference narrows for 6 of the 7 competencies. This closing of the gap is most marked for Mathematics and Word Recognition.

So we can conclude that although the final ECE centre's socio-economic mix does have an enduring effect, children's experiences in their first school year seem to be able to close the gap to some extent.

Table 56

Comparison of Percentage Point Differences in Competency Scores at Age 5 and Age 6 Between Children from Low Income and from Middle Income ECE Centres

Competency	Age 5	Age 6
Perseverance	10	7
Communication	9	6
Mathematics	20	12
Logical Problem-Solving	15	12
Literacy (5)—Word Recognition (6)*[43]	22	3
Literacy (5)—Invented Spelling (6)	22	19

Summary

Early childhood education experiences continued to show associations with the children's competency levels at age 6, and indeed showed them for a broader range of competencies than at age 5. The next table sums up these associations.

Table 57

ECE Experiences and Children's Competency Levels at Age 6

Competency	ECE Factor+
Communication*	**SES mix**, ***length***, starting age
Mathematics*	***SES mix, starting age, length***
Logical Problem-Solving	**SES mix, starting age, length, ECE pattern**
Individual Responsibility	Children allowed to complete activities, **length, staff-child interaction quality**
Perseverance*	***SES mix*, staff-child interaction quality, children allowed to complete activities, ECE pattern, type**
Word Recognition	***Length***, ***SES mix***, staff-child interaction quality
Invented Spelling	***SES mix*, staff-child interaction quality**
Social Skills with Adults	***SES mix***
Fine Motor Skills*	**Length**

* = associations also found at age 5 with ECE experience

+ = in order of their impact in terms of the amount of variation between children accounted for by the factor; *italics* = significant, **bold** = remained after allowing for family income, ordinary font = indicative. It is likely that the indicative associations seen would be significant with a larger sample.

While the children were still attending ECE, there were strong associations between their ECE experience and their Social Skills competency levels. After the children's first school year, these associations with social skills no longer appeared. Instead we found a wider range of associations between competency levels and ECE experience. The outstanding aspects of ECE experience associated with competency levels appear to be the socio-economic mix at the child's final ECE centre, the total length of ECE experiences, the quality of staff:child interaction, and the child's starting age.

The proportion of variance in children's scores explained by these factors is around 3 percent for most, and 5 percent for ECE socio-economic mix. By comparison, we found a 2–8 percent range of variance attributable to school factors.

ECE factors do not always contribute in the same way, or carry the same weight. Starting age,

[43] The difference evident between the closing of the gap for Word Recognition and the maintenance of a gap for Invented Spelling is not attributable to any difference in the correlations of these measures with the Literacy measure at 5. The correlation between Literacy scores at age 5 and Word Recognition scores at age 6 was r=0.45. Between Literacy and Invented Spelling it was r=0.43.

total length, the quality of staff:child interaction and the extent to which children have been allowed to complete activities are strongly associated with children's competency levels at age 6. Generally, the better their ECE experience "rated" on these factors, the better it is for children, though each competency is differently affected. In terms of socio-economic mix, it is the middle income centres which stand out from all others as benefiting competency levels most. Combining two or more ECE services at once suits Logical Problem-Solving. Attending a combination of ECE centres seems to favour the Mathematics competency levels of children from low income families. Children who went to playcentre do better on Perseverance than their peers who attended kindergarten or private preschool.

The associations between ECE and children's competency levels are never all visible at the same time. This is an important point to make in any evaluation of the impact of ECE. If our study had been done at only one point in the children's lives, we would have a different picture from the one obtained by following the children for a further year. Neither of these pictures can be more than partial. But looked at together, they are more informative.

It is not clear why some associations between children's ECE experience and their competencies show up when they are nearing 5 and in early childhood education, but do not show up a year later. Others emerge only after early childhood education is over. However, our analysis at both ages shows positive associations between facets of early childhood education experience and 9 of our 10 competencies. The only exception is Curiosity.

Our analysis also suggests that early childhood education has both concurrent and enduring impacts on children's performance in Communication, Mathematics, Perseverance and Fine Motor Skills. Two of these competencies, Communication and Mathematics, were found to be among those in which a child's performance at age 5 was most predictive of their overall performance at age 6.

What appears to benefit children's development of competencies is starting ECE before the age of 3, having access to the mix of activities, equipment, and interactions which most New Zealand ECE services offer, and attending ECE services of reasonable quality. In our first report, we found that good quality ECE services tended to have fully qualified staff, who knew how (and why) to provide the mix of activities and interactions which benefit children, and who were also reasonably paid. The work of good quality ECE staff can mitigate the negative effects of large group size and high numbers of children per staff member.

Early childhood education experience clearly benefits all children, including those from low income homes. If we expect early childhood education to soften further the negative impact of low family income on children's competency levels, however, the ECE services will need to provide a higher standard of support than those in our study were able to do with the level of resources available to them.

CHAPTER 7

CHILDREN'S COMPETENCIES, SCHOOL RESOURCES, AND PARENTAL SATISFACTION

In this chapter we look at how the study children's competencies are associated with their school resources, and with parental views of children's progress. Some of these associations began to appear in the previous chapter. We cover:

- School socio-economic mix and decile rating
- School type
- Class size
- Proportion of ESL children in the class
- Child's school attendance
- Parental satisfaction with their child's initial school progress
- Teacher assessment of child's initial school progress

Overall Findings for Socio-economic Mix and School Decile

We asked teachers to rate the socio-economic mix of the community served by their schools. This allowed us to include all the study schools in our analysis. We also used the Ministry of Education decile ratings of state and state integrated schools. Using the teacher ratings, we found that children who attended schools serving middle income communities performed differently from children at other schools. Using the decile ratings, we found that children attending decile 1–2 schools performed differently from others. There was a trend for average scores to increase as the school decile rose; however, the average scores of children attending decile 9–10 schools were not significantly higher than those attending decile 3–8 schools.

Our results in relation to the school decile rating are similar to those reported for five of the six areas assessed so far by the National Education Monitoring Project (NEMP) for year 4 students (8 to 9 year olds). The NEMP shows lower average performance levels for year 4 students (8 to 9 year olds) at decile 1–3 schools, compared to all others.[44] But between students at decile 4–7 and decile 8–10 schools, there are only minor and often insignificant differences. The analysis of year 4 students' mathematics performance in the recent IEA Third International Mathematics and Science Study reports "a trend for classes in higher decile schools to obtain higher scores" (Garden 1997, p. 71), and shows lower average means for standard 3 classes in decile 1–3 schools.

The analyses reported in Chapter 5 showed some correlation between family income and the school decile attended by a child, particularly for children from the two top income brackets. To what extent are the differences related to school decile attributable to family income? Or does the school's socio-economic mix make a contribution of its own to children's competency levels, as we saw happening with the final ECE centre's socio-economic mix?

School Socio-economic Mix

Our analysis showed that the school's socio-economic mix, as rated by the children's teachers, was associated with scores on 3 of the 10 competency measures—mainly in the cognitive area. They were Communication, Mathematics, and Literacy.

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[44] These differences occur in reading and speaking (Flockton and Crooks 1997a, p.66), 5 of the 13 technology tasks (Crooks and Flockton 1997a, p. 42), 7 of the 20 music tasks (Crooks and Flockton 1997b, p. 60), 20 of the 37 science tasks (Crooks and Flockton 1996a, p. 50), 18 of the 27 graphs, tables and maps tasks (Crooks and Flockton 1996b, p. 46), and 1 of the 11 art tasks (Flockton and Crooks 1996).

Table 58

School Socio-economic Mix and Children's Competencies

School Socio-Economic Mix → Competency ↓	Middle-Class n=160	Wide Mix n=53	Low-Middle n=37	Low n=45	Probability
Communication	74.1	71.2	69.7	*66.6*	0.031
Mathematics	79.7	74.3	72.2	*71.8*	0.0007
Literacy:					
Word Recognition	20.3	16.0	16.0	*16.4*	0.057
Invented Spelling	63.6	50.3	54.4	*51.0*	0.0007

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

All of the high scores come from schools with a mainly middle income population. There are no differences between the other schools. This difference separating out the middle income schools from others fits with the research literature on school socio-economic mix (Thrupp 1996). However, most studies of school socio-economic mix have concentrated on secondary schools, where national examinations provide easily accessible evidence of student achievement. This study provides evidence that differences between children related to the socio-economic mix of the school they attend occur right at the beginning of their schooling, and in competencies which are the ones most commonly measured for academic prowess.

School Decile (State and Integrated Schools Only)

When we looked at the impact of school decile ratings on children's scores, we found associations with Communication, Mathematics and Invented Spelling —but not Word Recognition. Children in the lowest decile schools had lower scores than others.

Table 59

School Decile Ratings and Children's Competencies

Deciles → Competency ↓	1–2 n=33	3–4 n=53	5–6 n=33	7–8 n=59	9–10 n=97	Probability
Communication	*62.5*	69.9	73.7	74.0	72.8	0.005
Mathematics	*67.3*	73.3	74.6	77.7	**80.5**	0.0002
Invented Spelling	*49.6*	52.7	57.9	55.7	64.8	0.001

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

Allowing for family income at age 6, we found that children attending decile 1-2 schools showed the lowest scores on Mathematics regardless of their family income level. But allowing for family income weakened the association between school decile and Communication scores. So for this competency, family income at age 6 was more significant than school decile. This was also true for Invented Spelling. The association of school decile overlapped so much with family income that the effects of each could not be told apart.

School Type

The recent TIE (Targeted Individual Entitlement) scheme was designed to assist low income children to attend private schools. The aim was to allow children from low income homes to have access to what was believed to be a better quality of education than would be available to them at state or integrated schools in their neighbourhood.

In this study, we found that private school attendance at age 6 was associated with higher scores in only 1 competency, Word Recognition ($p=0.002$).

The next table gives the distributions for the three types of school. The 20 study children at private schools had higher scores on Word Recognition at the median and below, but had the same upper quartile scores as children at state schools. The highest score came from a child at a

state school. The upper quartile scores of children at integrated schools were lower than the upper quartile scores of children at state and private schools.

Table 60

Distribution Summaries for Word Recognition Scores within Categories for School Type

School Type	lowest score	lower quartile	median	upper quartile	highest score
State	0.0	9.1	18.2	35.5	60.9
Integrated	0.9	8.2	12.7	22.7	35.5
Private	5.5	18.2	26.4	35.5	48.2

Allowing for school socio-economic mix made some difference to this association. The private schools in the study were all described as serving communities which did not include low income or low to middle income families, whereas just under a third (32 percent) of the state schools served low or low to middle income communities. Children at private schools described as serving a mainly middle income community had scores which were on average 10 percentage points higher than children at private schools described as serving a community with a wider socio-economic mix. However, school type contributed more than school socio-economic mix to Word Recognition scores.

Allowing for family income gave such a close overlap between family income and school type that it was not possible to say which was making the larger contribution to Word Recognition scores. This is not surprising, given that 18 of the children attending private schools came from the highest income bracket, 1 each from families in the second and third highest income brackets, and none from the lowest income bracket. Family income was not related to whether children attended integrated schools, any more than it was to whether children attended state schools.

Class Size

Class sizes experienced by the children in the study ranged from 7 to 38,[45] with the median at 26. So half these 6 year olds were in classes of more than 26 children.

Being in a class of 21 or fewer was associated with higher scores on Curiosity and Social Skills with Peers (both indicative, $p=0.05$ and $p=0.04$ respectively). Children in the largest classes scored lowest on these 2 competencies, but not significantly lower than those in the mid-size classes. Children in the smallest classes scored on average 2 to 8 percentage points higher than others on Curiosity, and 4 to 6 percentage points higher than others on Social Skills with Peers.

As we saw in the previous chapter, low class sizes could close gaps between the performance of children who had experienced shorter total ECE, or lower quality staff-child interaction in their final ECE, and others, for the competencies of Mathematics, Perseverance, and Social Skills with Adults.

Proportion of Children in the Class with English as a Second Language (ESL)

We found only one association, with Communication, between the proportion of ESL children in the class and children's competency levels. This was an indicative association ($p=0.042$). Children in classes with 11 percent or fewer ESL children scored on average 4 percentage points on Communication above those in classes where more than 11 percent of the class had English as their second language.

We also found that the median school decile differed in relation to the proportion of ESL children in the class. For classes with no ESL children at all, the median school decile was 8, but for classes with between 12 and 30 percent ESL children, the median school decile was 4. For

[45] 38 may seem rather high, but some of the classes had 2 teachers.

classes with more than 30 percent ESL children, the median school decile was 2.

School Attendance

Most children's school attendance was good. For 21 children it was satisfactory, and only 5 had poor attendance.

Only one effect was found, for Word Recognition (indicative, p=0.051). Children with good attendance scored 6 percentage points higher than those whose attendance was satisfactory only, and 7 percentage points higher than the small group whose attendance was poor.

When we looked at associations with all the competencies taken together, rather than singly, the trend for children with good attendance to perform better overall was still only indicative (p=0.04). This result was influenced by the lack of differentiation among scores for Social Skills with Peers, and Social Skills with Adults. When we removed these 2 competencies from the analysis, children with good attendance scored more than those with satisfactory attendance—5.9 percentage points per competency, on average (p=0.02).

Parental Views of Their Child's Initial School Progress

We saw in chapter 4 that parental satisfaction with their child's initial school progress appeared to focus on their child's reading book level, and to be reasonably accurate in relation to that. Looking at parental satisfaction in relation to children's performance on all our competency measures, we found that while literacy continues to stand out, there are also links between parents' levels of satisfaction and their children's score on our measures of Perseverance, Social Skills with Adults, and Individual Responsibility.

Table 61

Parental Satisfaction with Child's School Progress and Children's Competencies

Parental Satisfaction → Competency ↓	satisfied n=201	qualified satisfaction n=74	dissatisfied n=20	Probability
Perseverance	**67.5**	61.1	*52.8*	0.00020
Individual Responsibility	**81.2**	76.9	*70.4*	0.0062
Social Skills with Adults	**75.4**	72.3	*63.3*	0.0062
Literacy:				
Word Recognition	**19.8**	17.0	*12.4*	0.0026
Invented Spelling	**60.4**	57.6	*42.4*	0.019

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

The children of parents who were satisfied with their initial school progress had the highest scores on all 4 of these competencies, and the children of parents who were dissatisfied had the lowest scores (though only half of these differences were significant). So parental satisfaction levels do reflect children's competency levels, but only in relation to these 4 competencies. We did not find any associations between parental level of comfort in talking to their child's teacher, and the child's competency levels.

Parental Aspirations for their Child's Education

Parental aspirations for their children's education provide some indication of the value parents put on education, their expectations for their children, and their willingness or ability to support their children. When we analysed this factor in relation to the children's competency levels at age 6, we found that children whose parents saw the end of secondary school as the end of their child's education scored lower than others on the competencies of Mathematics, Perseverance, Social Skills with Adults, Communication, Word Recognition, Invented Spelling, and Individual Responsibility. The parents who had the most limited aspirations for their children also tended to have low incomes.

When we took family income into account in looking at whether children whose parents hoped they would go onto tertiary education did better than others, we found that this aspiration did make a difference for Mathematics, Invented Spelling, and Social Skills with Adults. There was a marked advantage for children from homes with incomes of less than $30,000 whose parents had higher aspirations for them, compared with other children from homes in the same income bracket.

Teacher Rating of Child's Initial School Progress

Levels on all competencies were highly significantly associated with the teachers' overall rating of children's initial school progress. However, on 6 competencies—Mathematics, Curiosity, Individual Responsibility, Social Skills with Peers, Social Skills with Adults, and Fine Motor Skills—the scores of children who were rated as very good/excellent did not differ significantly from the scores of those rated as average, but good in some areas.

Table 62

Teacher Ratings of School Progress and Children's Competencies

Competency	Minimal or slow (n=55) %	Average/ medium (n=82) %	Average but good in some areas (n=65) %	Very good/ excellent (n=96) %	Probability
Curiosity	*50.6*	58.3	69.9	69.4	$1.5x10^{-13}$
Perseverance	*45.9*	62.0	68.3	76.1	0
Independence	*63.5*	78.8	83.5	86.4	0
Social Skills with Peers	*56.5*	63.7	67.0	70.9	$1.3x10^{-10}$
Social Skills with Adults	*59.1*	71.6	79.0	80.6	$2.1x10^{-15}$
Communication	*54.5*	69.7	74.8	81.7	0
Mathematics	*62.1*	72.9	81.0	85.2	0
Fine Motor Skills	*44.1*	*44.1*	52.3	58.7	$1.8x10^{-6}$
Literacy:					
Word Recognition	*7.4*	14.3	18.7	28.3	0
Invented Spelling	*33.6*	54.5	60.1	74.5	0
Logical Problem-Solving	*47.1*	51.2	54.5	61.9	$2.3x10^{-7}$

The **highest** scores for each competency are in **bold** type, the *lowest* in *italics.*

Family Income

When we allowed for family income, all the associations between school socio-economic composition and competency levels remained. Schools serving a mainly middle income community tended to show higher scores for children from low to mid income families. Children from high income homes appeared to be unaffected by the socio-economic mix of the school they attended.

All the associations with parental satisfaction also remained after allowing for family income. This indicates that parental satisfaction did not go hand in hand with family income levels. And indeed, the data on parental satisfaction showed that levels of dissatisfaction were higher among parents with higher income levels.

The associations between teacher assessments of overall progress and children's competencies also remained. There was a tendency for children from low income homes whose teachers assessed them as making very good or excellent progress to score lower on our Mathematics and Literacy measures than other similarly assessed children. But where children from low income homes were rated as medium with strengths, they scored higher on our Mathematics and Literacy measures than other children whose progress was similarly assessed by their teachers.

Summary

Recent studies of the impact of differences in schools and classrooms (Reynolds et al 1994, p. 42) have found that these explain 8-15 percent of the variations among children's school performance. Our findings for this phase of our study gave a lower range of 2 percent to 8 percent. The exception was the teacher's overall judgment of the child's initial school progress, which explained between 9 and 40 percent of the variance. Perhaps, as for some aspects of early childhood education, more time may be needed for the full effects of school resources on children's competency levels to show up. At the 8 year old phase, we will expand our range of school and classroom factors to include funding per student (both from government and raised by the school), children's assessment of their classroom environment, and some variables related to teacher qualifications.

The school-related factors showing the strongest associations with the levels of children's competencies at age 6 were school socio-economic mix and school decile, teacher assessments, and parental satisfaction with the child's initial school progress.

Table 63

School-related Factors and Children's Competencies at Age 6

Competency	School Factor	Strength of association*
Curiosity	**Teacher rating of child's initial school progress**	s
	Class size	i
Perseverance	**Teacher rating of child's initial school progress**	s
	Parental satisfaction with child's initial school progress	s
	Parental aspiration for child's education	s
Individual Responsibility	**Teacher rating of child's initial school progress**	s
	Parental satisfaction with child's initial school progress	s
	Parental aspiration for child's education	i
Social Skills with Peers	**Teacher rating of child's initial school progress**	s
	Class size	i
Social Skills with Adults	**Teacher rating of child's initial school progress**	s
	Parental aspiration for child's education	s
	Parental satisfaction with child's initial school progress	s
Communication	**Teacher rating of child's initial school progress**	s
	School decile	s
	School socio-economic mix	i
	Parental aspiration for child's education	s
	Proportion ESL in class	i
Mathematics	**Teacher rating of child's initial school progress**	s
	School decile	s
	School socio-economic mix	s
	Parental aspiration for child's education	s
Fine Motor Skills	**Teacher rating of child's initial school progress**	s
Literacy:	**Teacher rating of child's initial school progress**	s
Word Recognition	*School type*	s
	Parental satisfaction with child's initial school progress	s
	School socio-economic mix	i
	School attendance	i
	Parental aspiration for child's education	i
Invented Spelling	**Teacher rating of child's initial school progress**	s
	School socio-economic mix	s
	School decile	s
	Parental satisfaction with child's initial school progress	i
	Parental aspiration for child's education	i
Logical Problem-Solving	**Teacher rating of child's initial school progress**	s

Bold = remained after allowing for family income, *italic* = did not remain after allowing for family income, ordinary script = not modelled with family income.

*s = significant; i = indicative

CHAPTER 8

CHILDREN'S COMPETENCIES AND FAMILY RESOURCES, CONTACT WITH EXTENDED FAMILY, AND PARENTAL ATTITUDES

Consolidation and Continuity

In this chapter, we examine the associations between family and home resources at age 6 and children's competency levels at age 6. We also look at any changes taking place in the year between 5 and 6. We have included levels of some resources, such as family income, at age 5, in order to explore further the continuing impact of these earlier resource levels on children's competency levels.

In our first report we found that a number of family resource related factors which showed associations with children's competencies when looked at by themselves were actually "standing in" for family income differences. We report both, to show the difference between looking at such factors alone, and taking family income into account. Our analysis here has brought home to us the necessity of including family income in any analysis of family factors, if we are to understand our social reality fully, and respond effectively.

Family Income

At age 5, family income was associated with differences in the levels of 7 competencies. Children from families in the lowest income bracket (less than $20,000 per year) were 16 percentage points behind other children on Mathematics, 13 percentage points behind on Literacy, and 12 percentage points behind on Social Skills with Peers. They were at least 7 percentage points behind other children on Social Skills with Adults, Individual Responsibility, Communication, and Perseverance.

Family income continued to play the dominant role in the links between family resources and children's competency levels at age 6. To take into account the changes in family incomes described in Chapter 3, we analysed children's competency levels at age 6 in relation to income not only at age 6, but also at age 5.

The next two tables show that family income at both ages is associated with scores on all competency measures except Curiosity and Fine Motor Skills. When the children were 5, family income had shown no association with Logical Problem-Solving, but at age 6, this new association emerged.

Table 64

Family Income at age 5 and Children's Competencies at age 6

Income Group →	Income < $20K	Income $20K-$30K	Income $30K-$60K	Income > $60K	Probability
Competency ↓	Score (%) n=53	Score (%) n=29	Score (%) n=128	Score (%) n=86	
Perseverance	*61.7*	64.4	63.3	**69.6**	0.031
Individual Responsibility	*74.5*	82.5	77.4	**84.3**	0.0018
Social Skills with Peers	63.8	67.2	63.0	**69.5**	0.020
Social Skills with Adults	*70.4*	76.3	71.9	**78.0**	0.023
Communication	*68.4*	68.6	70.3	**77.7**	0.0004
Mathematics	*69.9*	72.0	78.0	**80.5**	0.0003
Literacy:					
Word Recognition	*14.0*	14.9	18.7	**22.3**	0.0003
Invented Spelling	52.2	*45.7*	60.3	**63.2**	0.0003
Logical Problem Solving	53.1	*45.3*	54.4	**59.1**	0.0015

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

Table 65

Family Income at age 6 and Children's Competencies at Age 6

Income Group → / Competency ↓	Income <$20K Score (%) n=39	Income $20K–$30K Score (%) n=33	Income $30K–$60K Score (%) n=119	Income >$60K Score (%) n=96	Probability
Perseverance	63.4	*61.9*	62.9	70.5	0.007
Individual Responsibility	*75.4*	78.0	78.9	**83.6**	0.025
Social Skills with Peers	*63.7*	67.3	63.8	68.4	0.034
Social Skills with Adults	73.1	72.0	*71.0*	78.6	0.005
Communication	69.4	*66.6*	70.1	77.1	0.0002
Mathematics	73.0	*68.5*	77.6	79.7	0.0025
Literacy:					
Word Recognition	15.1	*15.0*	17.9	**22.2**	0.0012
Invented Spelling	57.5	*45.0*	57.9	63.9	0.0006
Logical Problem-Solving	*52.2*	52.8	52.6	59.3	0.017

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

Family income at age 5 was more strongly associated than family income at age 6 with children's levels on the following 6 competencies at age 6: Mathematics, Word Recognition, Invented Spelling, Logical Problem-Solving, Social Skills with Peers, and Individual Responsibility. Family income at age 6 was more strongly associated with levels on 3 competencies at age 6: Perseverance, Communication, and Social Skills with Adults.

However, we did not find a steady increase in scores on these 9 competencies as family income brackets increased. For scores on Mathematics and Word Recognition, the children split into 2 groups: family incomes above $30,000, and at or below $30,000. For scores on Perseverance, Communication, Social Skills with Peers, and Social Skills with Adults, the children again split into 2 groups: those with the highest family incomes (above $60,000) and all others. At age 6, children whose family income had been low ($20–30,000) at age 5 scored below children from all other family income groups on Invented Spelling and Logical Problem-Solving. This group of children from low income families had also shown a tendency to perform less well than other children on other competencies at age 5. As yet, we have no explanation as to why this is so.

All the highest scores at age 6 occur for children in the highest income group. Generally, the lowest scores occur for children in the lowest two income groups ($30,000 or less). Where there are differences between the lowest ($20,000 or less) and low income groups, these are mostly insignificant at age 6.

Because family income was such an important factor, we allowed for it when we were looking at the associations between other factors related to family resources. The results of allowing for family income are reported in the sections on each separate factor.

Family Income Changes

Over the children's first year at school, income decreased for 22 families, but only 2 of these were in a lower income bracket ($20–30,000). Of the 27 lower income families whose incomes increased over the year, most (17) increased their income only from the lowest to the second lowest income bracket. So for those in the two lowest brackets, there was little change.

To see whether changes in family financial circumstances over the first year at school made a difference, we analysed these in relation to the children's competencies at age 6, and found four associations.

Table 66

Family Income Changes and Children's Competencies at Age 6

Income Change → / Competency ↓	Lower incomes no change n=49	Lower incomes which increased n=27	Higher incomes which increased n=22	Incomes decreased n=22	Higher incomes with no change n=165	Probability
Mathematics	71.3	*69.0*	75.0	78.9	79.5	0.0014
Literacy:	14.8	13.7	19.1	16.9	20.8	0.0016
Word Recognition						
Invented Spelling	53.7	43.1	53.8	50.9	63.7	0.00015
Logical Problem-Solving	*49.1*	54.5	59.4	60.4	55.2	0.046

"Lower" = <$30,000; "Higher" = >$30,000

The **highest** scores for each competency are in **bold type**, the *lowest* in *italics*

The separation of the highest income group from all others is again evident. The enduring effect of earlier levels of resources on children's performance shows up here again too. The lowest scores in 3 of the competencies were for children in low income families whose income had risen over the first year of school for the child. So level of income is likely to be more important than the fact of change in income.

Proportion of Family Income Spent on Housing

At age 5, children from families spending half or more of their after-tax income on housing had scored on average 12 percentage points less on Mathematics than those whose families spent a quarter or less of their income on housing. This gap disappeared once family income was taken into account.

The proportion of income spent on housing appears to carry as much weight for the level of children's competencies at age 6 as at age 5. Levels of spending on housing a year before had just as much a bearing as current levels of spending, but on different competencies.

In this current phase of our study, we found 5 associations between the proportion of family income going on housing at age 5, and children's competency levels at age 6. There were 3 significant associations, with scores on Individual Responsibility, Mathematics and Logical Problem-Solving measures, and 2 indicative associations, with scores on Word Recognition and Invented Spelling.

The children whose families had spent only 25 percent or less of their after-tax income on housing back at age 5 performed better than all others on all the competencies at age 6. The average advantage for this group of children was 5 percentage points per competency. However, children from families where housing had taken more than half of income at age 5 performed at much the same level at age 6 on 4 competencies as children from families where housing had taken less than a quarter of income at age 5. These 4 competencies were Mathematics, Word Recognition, Invented Spelling, and Logical Problem-Solving.

This pattern was also evident when we looked at the *current* proportion of family income going on housing. There were significant associations with a different range of competencies: Perseverance, Individual Responsibility, Social Skills with Adults, and Communication, as well as an indicative association with Mathematics.

As we saw in chapter 3, those spending half or more of their income on housing at age 6 included more high income families than at age 5, and also more two-parent families (although this pattern was much more prevalent among low income and sole-parent families). This goes some way toward explaining why competency scores at age 6 do not show a steady increase as the proportion of family income spent on housing decreases. But it does not explain why this was also the case at age 5, nor why there was such a change in the range of competencies associated with spending on housing between age 5 and age 6.

When we allowed for family income at age 6, the association between the proportion of income spent on housing at age 6 and the measure of Social Skills with Adults disappeared, and the associations with Communication and Mathematics were considerably weakened. Only the associations with Perseverance and Individual Responsibility remained. For the group of children in the lowest income families, those where less than a quarter of the family income went on housing scored better on Perseverance than those where housing took a higher proportion of income, but not on the other competency measures.

Main Source of Family Income

We analysed this in relation to children's competencies only at age 6. We found 1 significant association, with the Individual Responsibility measure, and 3 indicative associations, with Perseverance, Word Recognition, and Communication. We also found some overall trends, with children from families receiving state benefits tending to score at lower levels. When we looked at scores for all the competencies combined (our composite measure), we found a significant difference between these children, and those where family income combined wages and self-employment; and indicative differences between these children and those where family income came from wages only or self-employment only.

There were no differences among the groups whose family income came from employment, of whatever kind. This suggested that income level might be the key factor, rather than source of income itself.

And indeed, when family income was taken into account, none of the associations between source of family income and children's competencies remained. Source of family income appears to "stand for" other factors. As well as family income, these include mother's education, and parental occupations, which are discussed below.

Family Type

When the children were aged 5, family type showed only 1 significant association, with Communication: children from sole-parent families were 8 percentage points behind children from two-parent families on this competency. There were also 2 indicative associations, with Perseverance (where children from sole-parent homes were 9 percentage points behind) and Social Skills with Peers (where they were 7 points behind).

But this result was not quite as clear cut as it seems. Children with sole parents living in extended-family households scored slightly more than those with two parents on Communication, 7 percentage points more on Perseverance, and 6 percentage points more on Social Skills with Peers. And after family income was taken into account, only one indicative association remained, with Social Skills with Peers.

A fifth of the children in sole-parent homes at age 5 were in two-parent homes at age 6. Nine children who were in two-parent homes at age 5 were in sole-parent homes at age 6. To take account of these changing circumstances, we looked at associations between competency levels at age 6 and family type at both age 5 and age 6.

The significant association between family type at both age 5 and age 6 and Individual Responsibility remained, as did the indicative association with Perseverance. There was also an indicative association with Communication. Children from two-parent homes were 8 percentage points ahead on the first, and 5 percentage points ahead on the second and third.

However, it should be remembered that 67 percent of sole-parent families were in the lowest income group (less than $20,000 per year), and another 12 percent were in the next lowest income group, while none were in the highest income group. Taking family income at age 6 into account removed all the associations between family type and children's competency levels, except for Individual Responsibility, and even that association showed considerable overlap between family type and family income. This is consistent with US research (Entwisle and Alexander 1996) showing that it is family income, rather than family type, which is the underlying factor.

Family Stability

We grouped together the children whose parents indicated that changes had occurred over the previous year to the family composition in terms of parents, including parental separation or new parental partners, and parents who had experienced stress, or the long-term absence of one parent. Only one marginal association emerged, with Individual Responsibility. Children whose families had none of the changes described above were 6 percentage points ahead of others on this competency measure. This lack of association fits with a Swedish study (Wadsby and Svedin 1996) of the impact (or lack of it) of divorce. Their review of the international research showed little reflection of such changes in family life in children's school achievement.

Maternal Employment Status

At age 5, we had found only one indicative association. Children whose mothers were working full-time scored on average 7 percentage points more than others on Literacy.

Looking at maternal employment status at age 6, we found significant associations with children's scores on Mathematics and Social Skills with Peers, indicative associations on Perseverance, marginal associations on Fine Motor Skills, and none on Literacy.

Children whose mothers were in part-time paid employment were ahead of those whose mothers worked full-time on Perseverance (7 percentage points) and on Social Skills with Peers (4 percentage points). They were ahead of those whose mothers had no paid employment on Social Skills with Peers, Mathematics, and Fine Motor Skills (6 percentage points for each).

The composite competency score showed that children of mothers who currently worked part-time generally did better than those whose mothers were not in paid employment, but not better than children whose mothers worked full-time.

After allowing for family income, the advantage for children whose mothers were in paid employment (full or part-time) increased on the competencies of Perseverance and Social Skills with Peers. The association with Mathematics was weakened.

Parental Occupations

We analysed both parents' former occupations and their current occupations for their associations with children's competency levels, in order to see if the enduring effects seen for family income were also evident in relation to differences in knowledge, social contacts and other resources which are often linked to differences in parental occupations. We also looked at current family income alongside former and current parental occupation.

Maternal Occupation at the Birth of the Family's First Child

At age 5, maternal occupation at the birth of the family's first child had shown 4 associations with children's competencies. Children whose mothers were in professional jobs before the birth of their first child were ahead of those whose mothers had been in unskilled work, by 18 percentage points on Mathematics, 14 percentage points on Literacy, 11 percentage points on Social Skills with Peers and 7 percentage points on Perseverance. Children of mothers who had been in skilled work had scores similar to those of children whose mothers had been in professional work on Perseverance and Social Skills with Peers; but they scored lower on Mathematics and Literacy (by 7 percentage points for each).

There were 6 significant associations with children's competencies at age 6, and one that was close to significant. This is almost twice as many as we found when the children were 5. Associations which had been only indicative at age 5 were the ones which now became statistically significant.

Table 67

Maternal Occupation at Birth of First Child and Children's Competencies at Age 6

Maternal Occupation → Competency ↓	Professional n=85	Skilled n=153	Unskilled n=31	Probability
Perseverance	**69.0**	64.4	*56.7*	0.0033
Individual Responsibility	**82.8**	79.2	*71.8*	0.0049
Social Skills with Adults	**76.7**	74.3	*66.7*	0.013
Communication	**75.9**	71.6	*63.5*	0.00027
Mathematics	**80.8**	74.9	*73.2*	0.0029
Literacy:				
Word Recognition	**21.9**	17.2	*14.7*	0.0029
Invented Spelling	**65.2**	56.1	*52.7*	0.0031

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

The age 5 gap between children whose mothers were in professional as compared with unskilled occupations at the birth of the family's first child (and therefore at least 6 years before we tested the children at age 6) narrowed at age 6 on the Mathematics measure, but increased on the Perseverance measure.

On the composite competency score, children of mothers who had been in professional occupations had an indicative advantage of 3 percentage points ($p=0.015$) over children whose mothers had been in skilled work, and a significant advantage of 9 percentage points on average ($p=0.00009$) over those whose mothers had been in unskilled work. Children of mothers who had been in skilled work had an average advantage of 5 percentage points over children of mothers who had been in unskilled work at the time their first child was born ($p=0.005$).

When we allowed for family income, we found that income and maternal occupation at the birth of the first child had indistinguishable effects on Perseverance, Individual Responsibility, and Word Recognition at age 6. Maternal occupation at the birth of the first child was more important than family income at age 6 for Mathematics, but family income at age 6 was more important for Communication, Social Skills with Adults, and Invented Spelling.

Paternal[46] Occupation at the Birth of the Family's First Child

When the study children were aged 5, paternal occupation at the time of the birth of the family's first child had shown significant associations with 4 competencies: Mathematics, Literacy, Social Skills with Peers, and Curiosity. There were also indicative associations with 2 other competencies: Social Skills with Adults, and Individual Responsibility. This is a broader range than the ones associated with maternal occupation at the birth of the first child. Perhaps this reflects the fact that, for most fathers, there is more continuity in employment, and for some an improvement in occupational status, rather than, as for some women, a movement from skilled work to unskilled work after motherhood.

When the children were 6, paternal occupation at the birth of the family's first child had 7 significant associations with children's competencies, and 2 indicative associations. This is more than we found at age 5. There were associations with Perseverance, Communication, and Logical Problem-Solving. The age 5 association with Individual Responsibility (which had been only indicative) was no longer present.

[46] This refers to the partner of the child's mother when the child was aged 5.

Table 68

Paternal Occupation at Birth of First Child and Children's Competencies at Age 6

Paternal Occupation at birth of first child → Competency ↓	Professional n=75	Skilled n=128	Unskilled n=31	Probability
Curiosity	**67.7**	62.5	*54.8*	0.0024
Perseverance	**69.9**	65.2	*58.3*	0.0068
Social Skills with Peers	**69.3**	65.8	*63.7*	0.030
Social skills with Adults	**76.9**	75.1	*65.5*	0.0026
Communication	**76.1**	72.7	*62.9*	0.00009
Mathematics	**80.9**	77.7	*66.4*	0.00005
Literacy:				
Word Recognition	**21.9**	18.7	*12.1*	0.0005
Invented Spelling	**64.5**	58.6	*48.3*	0.013
Logical Problem Solving	**60.8**	53.1	*52.1*	0.0046

The highest scores for each competency are in **bold** type, the lowest in *Italics*.

There was a trend for the children whose fathers had been in professional work at the birth of the first child to show the highest scores, and this trend was not likely to be a chance finding ($p=0.00001$). Children whose fathers had been in professional work at least 6 years earlier were on average 4 percentage points ahead of children with fathers who had been in skilled work, and 10 percentage points ahead of those whose fathers had been in unskilled work. Children of fathers who had been in skilled work were on average 6 percentage points ahead of children whose fathers had been in unskilled work. These advantages are similar to those found in relation to maternal occupation at the first child's birth.

Overall, we found the associations between parental occupations at the time of their first child's birth and children's competency levels strengthened as the children moved from age 5 to age 6. This supports the conclusion which emerged in looking at family income: children's performance is enduringly affected by what family resources and experiences were in the child's past, and these effects take time to emerge.

When family income was taken into account, the results varied. If men have more continuity in their employment than women, then there is also likely to be more overlap between paternal occupation at birth of first child, and current level of family income. Indeed, we did find such an overlap between these two factors in their associations with children's competencies both at age 5 and at age 6. At age 5, there were two exceptions. Paternal occupation at birth of first child was more important for Curiosity, and family income at age 5 was more important for Communication. When the children were 6, family income at age 6 was more important than paternal occupation at birth of first child for Social Skills with Adults and Invented Spelling, but the reverse was true for Mathematics, Word Recognition and Logical Problem-Solving.

Current Maternal Occupation[47]

Looking only at mothers who were employed when the children in the study were aged 6, we found the same pattern of associations with children's competencies, with one exception. At age 5 we had found an (indicative) association between mother's current occupation and Social Skills with Adults, but no association for Social Skills with Peers. This pattern was reversed at age 6. These associations were weaker with Social Skills and Communication, but somewhat stronger with the Mathematics and Literacy competencies. This may mean that current maternal

[47] We did not analyse children's competency levels and current parental occupations at age 5, so no comparisons of current occupations and those of a year ago is made. In most cases however, there was little difference in occupation over a one year period.

occupation has more bearing than former maternal occupation. But it may also reflect current family income differences.

Table 69

Current Maternal Occupation and Children's Competencies at age 6

Current Maternal occupation → Competency ↓	professional n=53	skilled n=89	unskilled n=44	Probability
Perseverance	**71.2**	*62.8*	63.6	0.021
Individual Responsibility	**84.7**	77.8	*77.5*	0.027
Social Skills with Peers	**68.6**	*63.7*	68.2	0.046
Communication	**77.2**	72.8	*69.0*	0.022
Mathematics	**83.7**	77.1	*74.4*	0.0013
Literacy:				
Word Recognition	**23.8**	18.1	*15.5*	0.0051
Invented Spelling	**67.2**	56.3	*53.7*	0.0027

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

Note: women who were not in paid employment when their child was 6 do not appear in this table

When we looked at all the competencies combined, we found that children with mothers currently in professional work performed better than those with mothers in other kinds of work. The average difference per competency was 5 percentage points ahead of children with mothers in skilled work, and 6 percentage points ahead of children with mothers in unskilled work. But there was no difference for children with mothers in skilled work or unskilled work. This may reflect the fact that 28 percent of the women who had skilled work before the birth of their first child were now taking unskilled employment. We did not investigate the effect of allowing for family income.

Current Paternal Occupation

The importance of **previous** family income and parental occupations for children's competency levels is underlined by the fact that we found only 5 associations between the father's current occupation and the study children's competency levels at age 6. These associations were all indicative, though with significant contrasts within them. They were Communication, Social Skills with Adults, Mathematics, Word Recognition, and Invented Spelling. Four competencies showed associations with the father's occupation at the birth of the family's first child, but not with his current occupation: Curiosity, Perseverance, Social Skills with Peers, and Logical Problem-Solving. A quarter of the fathers changed occupation over this period. Most of these moved to more skilled and better paid work.

On the combined competencies at age 6, children with fathers in professional work were ahead of children with fathers in skilled work by 3 percentage points on average per competency, and 6 percentage points ahead of children with fathers in unskilled work.

Mother's Highest Qualification when the Child was 5

At age 5 we had found that the mother's highest qualification had significant associations with Literacy and Mathematics, and indicative associations with Social Skills with Peers, Motor Skills, and Curiosity. For Curiosity, Literacy, and Social Skills with Peers, the higher the mother's qualifications, the higher the child's score (except for university degree compared with other tertiary qualifications, where there was no difference). For Mathematics, children with mothers with a senior school qualification scored as well as those with mothers with a tertiary or university qualification. There was no clear pattern favouring any particular qualification for scores on Motor Skills.

In this current phase, we again looked at the mother's highest qualification when the child was 5, in relation to the child's competencies at age 6. The associations with Mathematics, Literacy

and Curiosity remained. Significant associations with Perseverance, Communication, and Social Skills with Adults emerged, as well as an indicative association with Logical Problem-Solving. The associations with Motor Skills and Social Skills with Peers disappeared. The scores fell into two main groups: those of children whose mothers had no qualification, a mid-school qualification only, or a trades qualification, and those of children whose mothers had a senior school, tertiary, or university qualification.

However, when family income at age 6 was taken into account, a different picture emerged. Mother's qualification was more important than income for Mathematics (particularly so), but also for Word Recognition and Invented Spelling (all significant). Family income at age 6 was more important for Communication and Social Skills. Family income and mother's qualification could not be separated for Curiosity, Perseverance, and Logical Problem-Solving.

Table 70

Maternal Qualifications and Children's Competencies at Age 6

Mothers highest qualification → Competency ↓	None n=36	Mid-School n=63	Senior School n=18	Trades n=63	Tertiary n=49	University n=51	Probability
Curiosity	*56.8*	65.3	66.7	60.4	62.5	**68.5**	0.024
Perseverance	*60.1*	62.3	69.0	62.2	71.0	69.2	0.0098
Social skills with Adults	*65.9*	74.7	80.1	72.4	77.2	76.6	0.0076
Communication	*65.6*	71.6	76.1	69.6	76.0	75.7	0.0055
Mathematics	76.1	*71.2*	78.3	73.9	80.7	**82.3**	0.0004
Literacy:							
Word Recognition	16.2	*14.2*	16.3	17.6	21.3	**23.1**	0.0021
Invented Spelling	59.4	*50.7*	60.4	54.2	64.1	**66.5**	0.00073
Logical Problem Solving	52.2	51.8	56.7	*51.5*	56.7	**61.8**	0.011

The highest scores for each competency are in **bold** type, the lowest in *Italics*.

Mid-School refers to School Certificate and University Entrance; Senior School to Bursary and Higher School Certificate; Trades to a Trade Certificate, apprenticeship, ACA, Polytechnic Certificate or Diploma etc; Tertiary to teaching and nursing and other professional qualifications other than those requiring or obtained by a university degree.

Computer Ownership

At age 5, children from homes with a computer scored higher than those from homes without a computer on 6 of the 10 competencies. Two of these associations were significant, giving an advantage to those children of 9 percentage points on Literacy, and 7 percentage points on Mathematics. When family income was included in the model, only the association with Literacy remained significant.

This was another factor in which we expected changes to occur over the first year at school. When the children were 6, we looked at family computer ownership both at age 5 and at age 6.

When the study children were aged 5, 142 families in the study had a computer. By the time they were 6, 169 had one. Children whose families had a computer at age 5 had higher scores for all competencies at age 6—an average of 4 percentage points on each, using our composite measure. The significant associations were with Mathematics, Communication, Perseverance, and Social Skills with Adults.

However, we found that ownership of a computer at age 6 gave no advantages over not owning a computer.

This result was rather surprising. So we broke our data down into four more detailed categories:

Table 71

Computer Ownership

Computer Ownership	%	(N=297) n
Computer at both age 5 and age 6	43	128
No computer at all	38	114
Computer at 6 but not at 5	14	14
Computer at 5 but not at 6	5	41

Highest scores on Mathematics (a significant difference), and also on Individual Responsibility, Social Skills with Adults, and Communication, came in the groups who had always had a computer, and those who had one at 5 but lost it by the time they were 6. Looking at all the competencies combined, there was little difference in scores between those who got a computer between 5 and 6, and those with no computer at all. However, the groups who had always had a computer, or had one at the age of 5 but not 6, were advantaged over both the "no computer" group and the "only at 6" group.

These are intriguing findings. They back up our hypothesis that often prior experience and resources have effects on children's current competency levels which are as great as or greater than the effects of current experience and resources, but that these effects may not show up for some time. Analysis of the age 8 data should shed further light on whether such enduring and lag effects continue, or are found only in association with preschool experiences. It should also show whether preschool computer access is more advantageous for children than later acquisition of a computer. By collecting data on children's actual use of computers, we should be able to shed some light on whether different kinds of use are associated with different competencies.

Do the apparent effects of computer ownership merely reflect income differences? When we took family income into account, we found that computer ownership, as outlined above, continued to have effects of its own for scores on Mathematics and Invented Spelling, particularly for children in the lowest income families. A small advantage continued to be associated with computer ownership on Curiosity and Individual Responsibility, and an even smaller one on the two Social Skills measures. But the Communication association was removed.

Receipt of Daily Newspaper

For the age 6 phase, we made an assumption that daily newspapers provide a window on the world, and bring into the home new knowledge and other lives. We then used receiving a daily newspaper as an indicator of the resources available to children at home, and explored whether this was associated with children's competency levels.

At age 6, children whose home got a daily paper showed higher scores for every competency except Fine Motor Skills—an average gain of 4 percentage points per competency on the composite measure ($p = 0.002$). Getting a daily paper was significantly associated with Individual Responsibility, Communication, and Perseverance. There were indicative associations with Social Skills with Adults and Word Recognition, and marginal associations with Curiosity and Logical Problem-Solving.

Taking family income into account considerably weakened these associations. But the association with Communication remained. Getting a daily paper was of most benefit to children in the two lower income groups. In the lowest income group, the advantage over not getting a paper was 14 percentage points, and in the next lowest, it was 10 percentage points. In the mid to high income group, the advantage was 4 percentage points, and in the highest, it was only 1 percentage point.

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Contact with Extended Family

At age 6, children's contact with their extended family had a significant association with Social Skills with Peers. We also found indicative associations with Curiosity, Communication, Word Recognition and Invented Spelling. The children who tended to have the lowest scores were those with no contact with their extended family, or only a small amount, irregularly. These associations did not remain after we took family income into account.

Parental Definitions of Unacceptable Behaviour

As a gauge of parental discipline and values, we asked parents to tell us what behaviour they found unacceptable in their child. We found no associations between the children's competencies and parental reaction to the following behaviours: not finishing meals, not tidying the room, bullying, rudeness, fighting. Children whose parents found whining unacceptable scored lower than others on Individual Responsibility. Children whose parents found dishonesty unacceptable scored lower on Social Skills with Peers. There was also a tendency for these children to score lower across all the competencies, by an average of 3.3 percentage points (indicative). These results may indicate that the parental response to some extent reflects children's actual behaviour, as much as children's reaction to parental responses.
These associations did not remain after we took family income into account.

Summary

The next table summarizes the associations between the family resource factors and children's competencies at age 6. It shows the strength of the association (whether significant or indicative), and whether or not the factor was having its own impact (given in bold), or was in fact standing for family income (given in italics). It also conveys the importance of prior resource levels as well as current resource levels. Family income, parental occupations, employment, and education—the components of socio-economic status—appear again and again.

Family income appears to be the dominant force behind family resource related differences in children's Communication and Social Skills competency levels. It also has a marked effect on the cognitive areas. Parental occupations and education and prior computer ownership also have strong links with cognitive competencies, particularly Mathematics. The analysis also shows that prior family resources and changes need to be taken into account when looking at differences in children's performance. These have both enduring and lag effects on children's competency levels.

Table 72

Family Resources and Children's Competencies at Age 6

Competency	Family Resource Factor*	Strength of association+
Curiosity	*Parental occupation at birth of first child*	s
	Maternal qualification age 5	i
	Contact with extended family	i
	Computer ownership at age 5	i
	Receipt of daily newspaper(0)	i
Perseverance	**Proportion income spent on housing at age 6**	s
	Maternal qualification age 5	s
	Maternal occupation at birth of first child	s
	Paternal occupation at birth of first child	s
	Family income age 6	s
	Current maternal occupation	i
	Proportion income spent on housing at age 5	i
	Family income age 5	i
	Current maternal employment status	i
	Computer ownership age 5–6	i
	Computer ownership age 5	s
	Receipt of daily newspaper	s
	Family type age 6	i
Individual Responsibility	**Proportion income spent on housing at age 6**	s
	Family income age 5	s
	Family type age 5(0)	s
	Proportion income spent on housing at age 5	s
	Family income source	s
	Maternal occupation at birth of first child	s
	Current maternal occupation	i
	Receipt of daily newspaper	s
	Computer ownership age 5–6	i
	Family income age 6	i
	Family type age 6(0)	s
	Computer ownership age 5	i
	Unacceptable behaviour—whining	i
	Contact with extended family	s
Social Skills with Peers	Family income age 5	s
	Current maternal employment statss	s
	Current maternal occupation	i
	Family income age 6	i
	Paternal occupation at birth of first child	i
	Computer ownership age 5	i
Social Skills with Adults	*Proportion income spent on housing at age 6*	s
	Maternal qualification age 5	s
	Paternal occupation at birth of first child	s
	Family income age 6	s
	Current paternal occupation	i
	Computer ownership age 5–6	i
	Computer ownership age 5	s
	Family income age 5	i
	Maternal occupation at birth of first child	i
	Receipt of daily newspaper	i

* Given in order of the proportion of variance, or difference between children, explained by each factor, in relation to other factors. The proportion of variance does not equate with the actual size of differences between children's scores related to differences *within* each factor.

+ s = significant; i = indicative

Bold = remains after taking family income into account; *Italics* = gone after taking family income into account; ordinary print = not modelled with family income; (o) = overlap with family income

The range of variance explained by these family resource factors was 1–8 percent, with the socio-economic status factors usually explaining 5–8 percent of variance.

Competency (cont'd)	Family Resource Factor*	Strength of association*
Communication	*Paternal occupation at birth of first child*	s
	Family income age 6	s
	Family income age 5	s
	Maternal occupation at birth of first child	s
	Maternal qualification age 5	s
	Contact with extended family	i
	Proportion income spent on housing at age 6	s
	Receipt of daily newspaper	s
	Current maternal occupation	i
	Current paternal occupation	i
	Computer ownership age 5–6	i
	Family income source	i
	Computer ownership age 5	s
	Family type age 6	i
Mathematics	Paternal occupation at birth of first child	s
	Maternal qualification age 5	s
	Current maternal occupation	s
	Proprtion income spent on housing at age 5	s
	Family income age 5	s
	Family income age 6	s
	Maternal occupation at birth of first child	s
	Computer ownership age 5–6	s
	Computer ownership age 5	s
	Current maternal employment status	s
	Proportion income spent on housing at age 6	i
	Current paternal occupation	i
Literacy: Word Recognition	Maternal qualification age 5	s
	Paternal occupation at birth of first child	s
	Family income age 5	s
	Family income age 6	s
	Current maternal occupation	s
	Maternal occupation at birth of first child	s
	Receipt of daily newspaper	i
	Proportion income spent on housing at age 5	i
	Contact with extended family	i
	Family income source	i
	Current paternal occupation	i
Invented Spelling	Maternal qualification age 5	s
	Current maternal occupation	s
	Family income age 5	s
	Family income age 6	s
	Maternal occupation at birth of first child	s
	Proportion income spent on housing age 5	i
	Paternal occupation at birth of first child	i
	Contact with extended family	i
	Current paternal occupation	i
	Computer ownership age 5	i
Logical Problem Solving	*Maternal qualification age 5*	i
	Family income age 5	s
	Paternal occupation at birth of first child	s
	Proportion income spent on housing age 5	s
	Family income age 6	s
	Receipt of daily newspaper	i

CHAPTER 9

CHILDREN'S COMPETENCIES AND THEIR GENDER, ETHNICITY, HEALTH, AND LANGUAGE

In this chapter we analyse the children's competencies in relation to their gender, ethnicity, health and first language.

Gender

At age 5, significant associations were found between gender and 2 competencies. Girls were 7 percentage points ahead of boys on Perseverance, and boys were 6 percentage points ahead of girls on Curiosity. There was an indicative association with Literacy, with girls 6 percentage points ahead of boys. These differences remained after allowing for family income and maternal qualifications.

At age 6, only 2 competencies—Mathematics and Fine Motor Skills—showed *no* associations with gender. Girls were now performing better than boys overall, with an average advantage of 3 percentage points per competency on the composite competency measure (p=0.008). Boys did better than girls on Logical Problem-Solving and Curiosity.

Table 73

Gender and Children's Competencies at age 6

Gender → Competency ↓	Female n=137	Male n=161	Probability
Curiosity	*60.4*	**65.2**	0.016
Perseverance	**68.5**	*62.0*	0.0016
Individual Responsibility	**84.6**	*75.0*	0.00000029
Social Skills with Peers	**68.2**	*63.0*	0.00050
Social Skills with Adults	**75.9**	*72.0*	0.049
Communication	**73.7**	*70.3*	0.057
Literacy:			
Word Recognition	**21.0**	*16.4*	0.000076
Invented Spelling	**61.4**	*55.7*	0.043
Logical Problem Solving	*51.9*	**57.0**	0.0092

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

The appearance of this gap between girls and boys over the first school year is consistent with other research. Five of the six differences favouring girls are in competencies we assessed by teacher ratings. It may be that the criteria teachers use in their judgements favour girls, or that boys adapt less easily to the school environment (Renwick 1997, Rutledge 1997).

The gender difference in reading performance at this early age has been noted with regard to the higher proportion of boys receiving Reading Recovery. Elley (1992, p. 58) has suggested that boys are too immature to start formal reading at age 5. He bases this hypothesis on the 1991 IEA Reading Literacy study, which showed that of the six countries with the largest gender gap at age 9, three—including New Zealand—were among the four countries where children started school at age 5. However, the same study shows that at age 14, this gender gap for reading literacy had narrowed for New Zealand boys.

We found no difference between girls' and boys' scores on the Mathematics measure. This is consistent with Young-Loveridge's findings (Young-Loveridge 1987). Visser and Bennie (1996, p.102) found a "slight advantage" for girls at both age 5 and age 6½.

When we took family income into account, all these associations remained. Thus gender makes a difference for children's competency scores, regardless of family income level.

Ethnicity

At age 5, children's ethnicity had shown significant associations with Communication and Literacy, and indicative associations with Individual Responsibility, Social Skills with Adults and Mathematics. Pakeha/European and Asian children scored higher than Māori and Pacific Island children on Literacy, Individual Responsibility, and Social Skills with Adults. Pacific Island children had the lowest scores on Communication, and Māori children had the lowest scores on Mathematics.

But when family income was taken into account, most of these differences disappeared. Only two remained: Pacific Island children at age 5 scored significantly lower on Communication and Literacy.

At age 6, significant associations were found between ethnicity and the competencies of Invented Spelling, Word Recognition, Mathematics, and Communication. The association with Social Skills disappeared.

Asian children tended to have the highest scores, a trend which showed in analysing the composite competency score ($p = 0.005$). This analysis showed Asian children significantly ahead of Māori children by an average 8 percentage points per competency, ahead of Pacific Island children by 11 percentage points, and (at the indicative level) ahead of Pakeha/European children by 5 percentage points.

There were no differences among Māori, Pakeha/European and Pacific Island children on the overall competency score. However, Pakeha/European children did score better than Māori or Pacific Island children on the individual competencies of Mathematics, Word Recognition, and Invented Spelling. Pacific Island children scored less than others on the Communication and Mathematics measures.

The size of the differences initially found between ethnic groups did change between age 5 and age 6, indicating school influences. Generally, the gaps between Pakeha/European and Māori children narrowed to be around half what they were at age 5. Gaps between Pakeha/European and Pacific Island children doubled for the Mathematics competency, halved for Literacy, and stayed much the same for Communication.

When we took family income into account, only the association with Invented Spelling remained, considerably weakened. So it is income level rather than ethnicity which makes a difference to children's competency scores.

Health

At age 5, child's overall health status was associated (indicatively) with only 1 competency: Social Skills with Peers. Children with ongoing hearing problems were behind others on Social Skills with Peers, Literacy and Logical Problem-Solving. All these differences disappeared when family income was taken into account.

At age 6, we did not use parents' report of their child's overall health status, since we had too few children with less than very good or excellent health, and our analysis at age 5 showed us that this indicator was probably too broad. Instead we used the descriptions given of the child's health problems at the time of the interview with the parents to set up three categories: excellent health (191 children); vulnerable health, which included frequent colds, "catches everything going", or continued tiredness (49 children); and chronic health, which included chronic illness, allergies, and use of health specialists (54 children). But no associations were found with the children's competencies.

We then looked at hearing status at age 5, in three categories: no hearing problems (218 children); a corrected hearing problem (15 children); and hearing loss or ongoing monitoring of a problem (31 children). Here we did find associations (mostly indicative) with all the competencies except Curiosity and Fine Motor Skills—that is, with 5 more competencies than at

age 5. This indicates a persistent effect stemming from hearing difficulties, as well as some lag effects which take time to show up.

Table 74

Children's Hearing Status at Age 5 and Their Competencies at Age 6

Hearing Status → / Competency ↓	no hearing problems n=218	hearing problem corrected n=15	hearing loss/ hearing problem monitored n=31	Probability
Perseverance	**66.5**	62.5	*54.5*	0.0019
Individual Responsibility	**80.8**	76.7	*72.3*	0.020
Social Skills with Peers	66.4	**67.0**	*59.8*	0.020
Social Skills with Adults	**75.1**	68.3	*68.1*	0.037
Communication	**73.1**	68.1	*64.7*	0.0089
Mathematics	**77.4**	70.8	*70.0*	0.024
Word Recognition	**18.8**	16.0	*13.0*	0.0089
Invented Spelling	**59.6**	54.4	*44.9*	0.017
Logical Problem-Solving	**55.8**	51.0	*48.2*	0.044

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

Children with no hearing problems had higher scores across the board on the composite competency score ($p=0.00009$). They had an average advantage of 8 percentage points over those who had a hearing loss or were having a hearing problem monitored; and they had an indicative advantage of 5 percentage points over those who had had a hearing problem corrected.

We also collected information on current ear infections at age 6 (25 children). We found indicative associations with Curiosity, Mathematics, Social Skills with Peers, and Word Recognition. Children who had ear infections at age 6 were on average 3.5 percentage points behind others ($p=0.03$) on the composite competency score. We did not look at the impact of family income with respect to hearing status and current ear infections.

English as a Second Language

At age 5, children whose first language was English had scored significantly better than those with English as a second language on Communication, Social Skills with Adults, Social Skills with Peers, and Literacy. Most of the children whose first language was not English were attending A'oga Amata, so they had teachers who spoke their home language, and shared their home culture. So the measurements were usually made by adults who shared the child's first language. These differences disappeared once family income was taken into account.

At age 6, children with English as a second language were 9 percentage points behind others on Communication. This was an indicative association only. Continued interaction with others for whom the first language was English, and increased exposure to the English language through starting to read and write, appear to lessen the effects of this difference and confine it increasingly to the oral language which is the focus of our Communication measure. Because only one association was found, we did not look at the impact of family income here.

Summary

We looked in this chapter at aspects of the children themselves. Their gender showed marked associations with a broad range of competencies, even after family income levels were taken into account. But their ethnicity and first language were limited in their associations, and had no impact once family income was taken into account. The first year of school closed the gaps for children whose first language was not English, and for Māori children. Hearing problems at age 5 continued to have an impact at age 6. Current ear infections also showed associations with children's competencies.

Table 75

Children's Gender, Ethnicity and Health and Children's Competencies at Age 6

Competency	Gender and Health	Strength of association*
Curiosity	**Gender**	i
	Ear infections at age 6	i
Perseverance	**Hearing at age 5**	s
	Gender	s
Individual Responsibility	**Gender**	s
	Hearing at age 5	i
Social Skills with Peers	**Gender**	s
	Hearing at age 5	i
	Ear infections at age 6	i
Social Skills with Adults	**Hearing at age 5**	i
	Gender	i
Communication	*Ethnicity*	s
	Hearing at age 5	s
	Gender	i
Mathematics	*Ethnicity*	s
	Hearing at age 5	i
	Ear infections at age 6	i
Literacy: Word Recognition	**Gender**	s
	Ethnicity	s
	Hearing at age 5	s
	Ear infections at age 6	i
Invented Spelling	**Ethnicity**	s
	Hearing at age 5	i
	Gender	i
Logical Problem Solving	**Hearing at age 5**	i
	Gender	i

* s=significant ; i=indicative

Bold=remains after taking family income into account; *Italics*=gone after taking family income into account.

The proportion of variance explained by gender, ethnicity, and health factors ranged from 1 to 9 percent, with most around 3–4 percent.

CHAPTER 10

CHILDREN'S COMPETENCIES AND ACTIVITIES AT HOME

The findings at age 5 on the positive impact of home activities aroused much interest. Because we found that one particular activity/knowledge (of letter-sound associations) was linked with higher levels of performance on the Literacy competency, we analysed the activities at age 6 in specific detail, as well as at a global level.

We also included both age 5 and age 6 material on children's reading, writing and mathematical activities, and the time spent watching television, in order to explore the enduring effects and find out whether new effects emerged after a time lag. Finally, we looked at the impact of family income levels, and how this affected the associations between home activities and children's competency levels.

Family Activities Involving the Child

We asked the parents of the study children to describe the current activities which the children often did with their family. Five of the 12 family activities showed associations. We found no associations between the children's competencies and the following kinds of activity: physical, socio-dramatic, socializing, routine housework and home maintenance, watching television or going to the movies, school-related, or animal-related. Children from the 24 percent of families whose parents described family activities involving reading or writing scored higher than others on Word Recognition, Invented Spelling, Mathematics, Perseverance, and Individual Responsibility. These associations were all at the significant level. Children from the 21 percent of families whose parents described some activity involving mathematics or science scored higher on Mathematics, Word Recognition, and Invented Spelling. These were indicative associations.

There were also two indicative associations showing that children whose families took them on explorations or excursions scored higher, on average, on Word Recognition and Invented Spelling. Children from families who undertook art-related activities (9 percent of the sample) scored on average 14 percentage points higher than others on Fine Motor Skills.

Children whose families were involved in church or community activities scored 7 percentage points higher than others on Fine Motor Skills, but lower on Social Skills with Peers, Social Skills with Adults, and Communication. This may seem a rather odd result. The only factor differentiating the families involved in church or community activities was that this group contained a higher proportion of Pacific Island families.

We took family income into account for the five family activities which showed associations with children's competencies. Only literacy-related activities made their own contribution to children's scores, independent of family income.

Home Reading Activities

At age 5, children whose parents read to them at least once a day scored 8 percentage points more than others on Literacy. Reading to the child was also associated with a higher score (7 percentage points) on Mathematics (an indicative association). Knowing sound-letter relationships was significantly associated with Literacy, Mathematics, and Logical Problem-Solving, and indicatively associated with Communication. Children who played at reading books had a higher score on Individual Responsibility, but a lower score on Curiosity.

However, once family income and maternal qualification were taken into account, children who were read to at least once a day scored much the same as those who were not. The one reading activity which continued to make a difference in children's competency scores at age 6 was the knowledge that certain sounds went with certain letters.

At age 6, however, children who had been read to at least once a day at age 5 scored

significantly better than others on Word Recognition, Invented Spelling, Communication and Social Skills with Adults, and indicatively better on Mathematics, Logical Problem-Solving, and Perseverance. So at age 6, having been read to at age 5 was associated with 6 of the 10 competencies. Looking at all the competencies combined—the composite score—showed an average benefit of 5 percentage points per competency ($p=0.0003$).

At age 5, we asked parents about specific home reading activities:

- pretends to read
- memorizes favourite stories
- asks for favourite books to be read
- looks at books by self
- knows that certain sounds go with certain letters.

Playing at reading, looking at books, or having favourite books at age 5 had no associations with competency levels at age 6. But memorizing stories at age 5 did benefit competency levels at age 6, although this had not showed up when we analysed the children's competencies at age 5. At age 6 we found this association was significant for scores on Perseverance, and indicative for Communication, Social Skills with Peers, Social Skills with Adults, and Word Recognition. Children who had memorized stories at age 5 were on average around 5 percentage points ahead of others on the composite score ($p=0.006$).

Knowing that certain sounds went with certain letters at age 5 continued to show significant associations at age 6 with Invented Spelling, Word Recognition, and Communication, and indicative associations with Mathematics and Logical Problem-Solving. The overall advantage at age 6 of having this sound-letter knowledge at age 5 was 5 percentage points per competency ($p.=0.006$).

At age 6, when we looked at children's *current* reading activities, we found a mixed pattern of associations. We asked about 9 activities:

- reads words
- reads sentences
- sounds out words
- looks at books on own
- reads own books
- asks for favourite books to be read
- reads books from library
- memorizes favourite stories
- pretends to read.

With the exception of sounding out words, it was patterns in actual reading which were linked with differences in children's competencies: the ability to read sentences, and reading books of their own, or library books. Having books at home and using the wider resources of the public library to find interesting reading for children indicates that parents regard having additional books at home as valuable for children, or simply as an essential everyday activity.

Children who read books of their own scored significantly better than others[48] on Perseverance, Individual Responsibility, Communication, Word Recognition, Invented Spelling, and Social Skills with Adults, and indicatively better on Social Skills with Peers, Mathematics, and also Fine Motor Skills—one of the rare times we saw an association with this last competency. The average difference in competency scores was 9 percentage points ($p=0.00002$).

Reading library books was also positively associated—with all the children's competencies:

[48] The mainstay of the "Books in Homes" programmes is giving children book ownership. Recent evaluation shows that the programme is making a positive difference to children's reading (Elley 1997).

significantly with 8, indicatively with Curiosity and Social Skills with Peers, and almost indicatively with Logical Problem-Solving. Overall, the average advantage per competency was 10 percentage points. The probability of this occurring by chance was very remote.

Doing more than the 9 specific reading activities we asked about showed significant associations with all competencies except Mathematics, Logical Problem-Solving and Fine Motor Skills, with overall an average advantage per competency of 5 percentage points ($p=0.00004$).

Having favourite books or looking at books at age 6 showed no associations with children's competency levels. Children who were still memorizing stories at age 6 no longer scored higher than other children. There were some indicative associations between playing at reading at age 6 and the competencies of Mathematics, Word Recognition, Invented Spelling, and Social Skills with Peers, but no overall trends favouring children who played at reading at this age.

Sounding out words at age 6 did show significant associations with 6 of the 10 competencies: Perseverance, Social Skills with Peers, Social Skills with Adults, Communication, Mathematics, and the two Literacy measures, Word Recognition and Invented Spelling. Overall, sounding out words gave an average benefit of 9 percentage points ($p=0.00002$).

Children who read words at age 6 scored higher on the Perseverance and Word Recognition measures, and overall they scored on average 13 percentage points more ($p=0.002$). The lack of more direct associations between reading words at age 6 and scores on individual competencies may be due to the very small number in the study (6 children) whose parents said they could not read words at age 6.

Children who were said to be reading sentences at age 6[49] scored better than others on all the competencies except Fine Motor Skills. The average difference in overall competency scores was 13 percentage points ($p=0.000000002$).

Home Writing Activities

At age 5, we asked specifically about 5 writing activities:

- writes or pretends to write lists, letters, signs, cards etc
- writes or pretends to write own name or other words
- copies family members when they are writing
- gets involved with computer/TV/video programme involving writing
- asks what specific letters are/asks for help to spell words.

The other activities we found were:

- writes letters of the alphabet
- games
- pretend writing
- uses typewriter/computer
- parental writing instruction
- makes books.

There were significant associations between doing some "other" writing activity and the competencies of Mathematics, Logical Problem-Solving, Literacy, and Motor Skills.

Because associations emerged in looking at whether children did activities other than the ones we asked about, in our analysis of associations with the children's competencies we looked only at the presence or absence of these "other" activites.

For the current phase of the study, we looked at whether having done "other" writing activities at age 5 was associated with competency levels at age 6. The next table shows persistent

[49] 21 children were not reading whole sentences at age 6.

associations with the cognitive competencies and with Fine Motor Skills. There were also 2 new (indicative) associations, with Perseverance and Social Skills with Peers. The average overall advantage per competency at age 6 for "other" writing activities at age 5 was 4 percentage points (p=0.0003).

Table 76

Other Home Writing Activities at Age 5 and Children's Competencies at Age 6

Other Home Writing age 5 → / Competency ↓	No other home writing n=180	Other home writing n=116	Probability
Perseverance	*63.1*	**67.7**	0.034
Social Skills with Peers	*64.1*	**67.5**	0.030
Mathematics	*74.6*	**79.4**	0.0066
Fine Motor Skills	*47.6*	**54.7**	0.0041
Word Recognition	*16.5*	**21.4**	0.00034
Invented Spelling	*54.7*	**63.5**	0.00059

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

However, when we looked at the **current** level of other home writing activities, we found a rather different pattern. In general, other home writing at age 6 had more significant associations with children's competencies at age 6, except that neither Mathematics nor Fine Motor Skills now showed any association, and Individual Responsibility showed a weakened association.

Table 77

Current Other Home Writing Activities and Children's Competencies at Age 6

Other Home Writing age 6 → / Competency ↓	No other home writing n=191	Other home writing n=106	Probability
Perseverance	*62.4*	**69.7**	0.0008
Individual Responsibility	*76.1*	**85.5**	0.000001
Social Skills with Peers	*63.4*	**69.1**	0.0003
Social Skills with Adults	*70.7*	**79.4**	0.00003
Communication	*69.2*	**76.7**	0.00003
Word Recognition	*17.1*	**21.2**	0.002
Invented Spelling	*55.6*	**63.1**	0.010

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

Associations between current home writing activities and children's competencies also existed for most of the activities we specifically asked parents about. As with reading, actual practice in writing is positively associated with children's competency levels beyond the Literacy measure alone. Copying showed some negative associations, but not in relation to Literacy. The greater the number of copying activities, the lower the Logical Problem-Solving score, and the lower the score on our Curiosity measure; but there was no overall trend.

For those who wrote both their own names (only 2 children did not), and other words, or made lists, there were positive and significant associations with scores on Perseverance, Social Skills with Peers, Communication, Word Recognition, and Invented Spelling. The overall average advantage was 7 percentage points (p=0.0005). Children who wrote stories or poems scored higher than others on every competency except Social Skills with Peers and Logical Problem-Solving.

Children who wrote on a computer at age 6 scored significantly more than others on Communication and both Social Skills measures, and indicatively more on Curiosity and Individual Responsibility. However, they did not score higher on Literacy or Mathematics,

unlike the children who wrote stories or poems. The overall average advantage of writing on a computer was 4 percentage points ($p=0.0005$).

Since these specific activities were showing such strong results, we looked at the total number of writing activities (which included copying). We put the children into two groups: those who did 0–5 activities at home (107 children), and those who did 6–9 activities (190 children). Doing more than 5 writing activities was significantly associated with 5 of the 11 measures—Word Recognition, Perseverance, Social Skills with Adults, Individual Responsibility and Communication—and indicatively associated with Invented Spelling. The overall average advantage gained was 4 percentage points ($p=0.002$).

Home Mathematics Activities

The specific mathematics activities we asked about at age 5 were:

- counts out loud
- sings songs involving counting, or says counting rhyme
- counts things, e.g. buttons, pegs, people
- gets involved with computer/TV/video programmes involving counting
- uses numbers when involved with cooking, building etc
- talks about halves, quarters
- tells own age
- tells, or tries to tell the time.

The "other" mathematical activities we found at age 5 were:

- uses numbers in games or puzzles
- knows phone number/address
- uses numbers to describe
- adds/subtracts
- multiplies
- asks questions involving number
- uses numbers with money
- recognizes numerals
- understands patterns
- writes numbers.

At age 5, there had been associations between doing some other home mathematical activities and 7 competencies: significant associations with Mathematics, Literacy, Communication, Social Skills with Adults, and Logical Problem-Solving, and indicative associations with Curiosity and Perseverance.

The effects of other mathematical activities at age 5 persisted strongly a year later, at age 6. The only two competencies not positively associated with such activities were Fine Motor Skills and Individual Responsibility. The overall average advantage was 6 percentage points ($p=0.000003$).

Table 78

Other Home Maths Activities at Age 5 and Children's Competencies at Age 6

Other Home Mathematics at 5 → Competency ↓	No other home maths n=138	Other home maths n=160	Probability
Curiosity	*60.9*	**64.8**	0.052
Perseverance	*62.2*	**67.3**	0.015
Social Skills with Peers	*63.6*	**67.0**	0.027
Social Skills with Adults	*70.0*	**77.1**	0.00023
Communication	*69.1*	**74.3**	0.0029
Mathematics	*72.6*	**80.1**	0.000019
Word Recognition	*15.1*	**21.5**	0.0000034
Invented Spelling	*52.4*	**63.4**	0.0000061
Logical Problem Solving	*51.6*	**57.3**	0.0033

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

At age 6, there also appears to be an advantage across the board for children who are *currently* involved in other home mathematics activities (p=0.006). The overall average advantage per competency was 3 percentage points.

But unlike current other home writing activities, current other home mathematics activities showed fewer associations with competency levels at age 6 than such current activities had shown with competency levels at age 5, and fewer associations than these activities at age 5 showed with competency levels at age 6.

Table 79

Other Home Maths Activities at Age 6 and Children's Competencies at Age 6

Other Home Mathematics at 6 → Competency ↓	No other home maths n=159	Other home maths n=137	Probability
Curiosity	*60.7*	**65.9**	0.010
Individual Responsibility	*77.6*	**81.6**	0.034
Social Skills with Peers	*63.9*	**67.4**	0.023
Social Skills with Adults	*71.2*	**77.0**	0.003
Communication	*69.7*	**74.4**	0.007

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

We then analysed the following home mathematics activities among those we asked about specifically: counting, using numbers, playing board games, measuring, and using fractions. Using mathematics in activities that involve other people, or require several steps, seems to be more productive for children than simply using basic mathematical skills, such as counting, which showed no associations with any of the children's competencies.

Playing board games (which includes counting) was positively and significantly associated with the competencies of Mathematics, Word Recognition, Invented Spelling, Perseverance, Communication, Individual Responsibility, Social Skills with Peers, and Social Skills with Adults. It also had an indicative association with Logical Problem-Solving. Only Curiosity and Fine Motor Skills showed no associations with playing board games.

Children who measured things (for example, in cooking or carpentry) also scored higher on a wide range of competencies: Communication, Social Skills with Adults, Mathematics (all significant) and also Curiosity, Individual Responsibility, and Social Skills with Peers (all indicative). The scores of children who used fractions showed positive associations with every competency except Fine Motor Skills.

Children's Favourite Home Activity

We asked parents to describe their child's favourite activity at home (see Table 31, p. 39). Most parents gave us two activities rather than one clear favourite. Four of the activities they mentioned showed associations with children's competencies: physical activity, language, artwork, and nature/science activities. The activities which showed no associations were making things, make-believe, computer use, socializing, watching tv or video, doing puzzles or mathematics, helping, and eating.

As we did find that computer use and extra mathematical activity were associated with higher competency scores, using parental descriptions of children's favourite activities in our analysis may have limitations. However, the associations which were found do make sense, and illuminate some of our other associations. For example, physical activity was mentioned twice as often for boys as for girls, and it was linked negatively to scores on Literacy, Perseverance and Individual Responsibility. This preference for physical activity among boys may explain some of the gender differences we described in the previous chapter. Children whose favourite activity was physical, including sports, also scored lower than others on Mathematics.

Children whose favourite activity was language scored higher than others on all competencies except Curiosity, Logical Problem-Solving, and Fine Motor Skills. Children whose favourite activity was art-related did not score more highly than others on Fine Motor Skills. This may reflect the fact that art is less dependent on precision at the age of 6 than at later ages. However, art-related activity was associated with higher scores on Communication, Mathematics, Word Recognition, and Invented Spelling. Children who preferred nature (including pets), or science activities scored more highly than others on Curiosity, Perseverance, Social Skills with Peers, Social Skills with Adults, and Communication.

Television Watching

We asked only for the amount of time the children typically spent watching television, on a weekday and at the weekend. At age 5, this had shown only one association: children who watched a lot of television (more than 4 hours a day) scored around 10 percentage points less on Mathematics than children who watched fewer hours, or no television at all. There were no differences between children who watched some television, and those who watched none.

Unlike family resources and home activities related to literacy and mathematics, the amount of television watched on weekdays at age 5 had no enduring or lag impact on competency levels at age 6. Nor did the amount of current television watching on weekdays show any associations.

It was only when we analysed children's television watching in terms of their pattern for the whole week, including weekends, that some associations emerged. However, these showed no clear trend: children who watched more than two hours, on average, on a weekday, but reduced their weekend viewing, scored less than others—including those who watched the same amount on weekdays, but kept their viewing amount much the same on weekends. The small number (12) in the latter group may explain this result.

Table 80

Television Watching and Children's Competencies at Age 6

Combined Television Watching → / Competency ↓	<2h on weekday less at weekend n=47	<2h on weekday same at weekend n=80	<2h on weekday more at weekend n=119	>2h on weekday less on weekend n=37	>2h on weekday same at weekend n=12	Probability
Communication	74.6	68.8	74.3	*67.3*	71.5	0.013
Mathematics	77.2	73.7	80.2	*70.7*	76.6	0.0056
Word Recognition	**22.1**	17.0	19.9	*13.1*	18.3	0.0047
Invented Spelling	60.3	54.6	**62.7**	*49.5*	57.2	0.0089

The **highest** scores for each competency are in **bold type**, the *lowest* in *Italics*.

The absence of any clear relationship between the amount of television watched and children's competency levels is consistent with analysis done for the IEA studies of maths (Garden et al 1997, p. 149), and reading literacy, though there did seem to be a trend for light viewers to score higher than heavy viewers (Elley 1993, p. 19-20). Our analysis of children's television viewing at age 8 will include favourite programmes as well as the amount of time spent watching.

Home Activities and Family Income

As we saw in the previous chapter, family income has some of the widest and strongest associations with children's competencies of any of the factors we examined. Family income is itself a complex factor, related to parental employment, occupations, and education. It appears to underlie many of the apparent associations with other family factors, causing these to diminish or disappear when it is taken into account.

Yet family income's impact on the associations found between children's home activities and their competencies was minimal. When we took family income into account for 9 current home activities, they all continued to make their own impact on children's competency levels at age 6. These activities were:

- Reading library books
- Reading own books
- Other home reading at age 6
- Other home writing at age 6
- Writing stories/poems
- Other home mathematics at age 6
- Playing board games
- Using fractions
- Family activities related to literacy.

What this means is that the score of a child from a high income family who has "other" reading activities at age 6, for example, will be higher than the score of another child from a high income family who does not have these "other" activities.

For most of these factors, the advantages for children having the experience tended to go across the board, and be similar for children in families of all income levels. However, sometimes taking family income into account showed that the impact of a particular factor was different for children from different income groups. Thus children from the two low income groups who did extra home reading at age 6 improved their Word Recognition score by 7.3 percentage points, in contrast to children from the two higher income groups, who gained 2.35 percentage points. The same marked gain on Word Recognition scores (given that the median was 17.3) was also evident for low income children who did "extra" writing activities at age 6.

One of our most important findings was that children from the lowest income families gained particular advantages from 3 of the "home activities" factors we examined in relation to family income. These experiences and resources allowed the lowest income group children to make particularly marked gains, bringing them up to the level of children from the highest income homes. They were:

- **Reading own books**

This was associated with higher scores on:

Perseverance: 22 percentage point gain
Individual Responsibility: 26 percentage point gain
Communication: 14 percentage point gain
Fine Motor Skills: 24 percentage point gain
Word Recognition: 12 percentage point gain
Invented Spelling: 19 percentage point gain

- **Reading library books**

This was associated with:

Perseverance: 21 percentage point gain
Individual Responsibility: 15 percentage point gain
Social Skills with Adults: 12 percentage point gain
Communication: 14 percentage point gain
Fine Motor Skills: 19 percentage point gain
Word Recognition: 7 percentage point gain
Invented Spelling: 17 percentage point gain

- **Using fractions**

This was associated with:

Invented Spelling: 14 percentage point gain

The table on the next few pages shows the diverse range of activities which contribute to each of the children's competencies at age 6. Many of the activities we asked about make a contribution to children's perseverance, and social skills as well as cognitive competencies, even though, on the surface, they may seem to have no connection.

The home activities which seem most fruitful for children's performance on a broad range of competency measures are those which not only "practise" the activity itself, such as counting, but also involve some communication or awareness of others, whether as source (home reading from adults), or audience (real or imagined, present or potential), or those which involve using the particular knowledge or skill in a range of different settings, with different objects (such as measuring, or using fractions in everyday situations).

Analysis of the enduring and lag effects of home activities at age 5, show that it is the effects on literacy and mathematics competencies which endure, and are visible at both age 5 and age 6. But what emerges freshly at age 6 are gains for children in perseverance, communication, and social skills.

The proportion of variance explained by the home activities factors ranged from 1 to 10 percent, with many around the 4 percent mark.

Table 81

Home Activities and Children's Competencies at Age 6

Competency	Home Activities Factor*	Strength of association+
Curiosity	Other home reading	s
	Reads library books	i
	Other home maths	i
	Writes stories/poems	i
	Uses fractions	i
	Writes on a computer	i
	Reads sentences	i
	Measures things	i
	Favourite activity—nature/science	i
	Other home maths at age 5	i

* Given in order of the proportion of variance, or difference between children, explained by each factor, in relation to other factors. The proportion of variance does not equate with the actual size of differences between children's scores related to differences *within* each factor.

+ s=significant; i=indicative

Bold=remains after taking family income into account; *Italics*=gone after taking family income into account; ordinary print=not modelled with family income; (o)=overlap with family income

Competency (cont'd)	Home Activities Factor*	Strength of association+
Perseverance	Reads library books	s
	Reads sentences	s
	Writes stories/poems	s
	Reads own books	s
	Other home writing activities	s
	Other home reading	s
	Uses fractions	s
	Writes name and words/lists	s
	Family activity—literacy	s
	Plays board games	s
	Sounds out words	s
	Memorizes stories at age 5	s
	Favourite activity—language	s
	Home maths at age 5	i
	Favourite activity—drawing/painting	s
	Other home writing activities at age 5	i
	Favourite activity—physical (negative)	i
	Favourite activity—nature/science	i
	Home reading at age 5	i
Individual Responsibility	Reads sentences	s
	Reads library books	s
	Other home writing activities	s
	Family activity—literacy	s
	Reads own books	s
	Writes stories/poems	s
	Other home reading	s
	Plays board games	s
	Favourite activity—language	s
	Uses fractions	i
	Measures things	i
	Favourite activity—drawing/painting	i
	Favourite activity—physical (negative)	i
	Other home maths	i
	Writes on a computer	i
Social Skills with Peers	Other home writing activities	s
	Uses fractions	s
	Sounds out words	s
	Plays board games	s
	Other home reading	s
	Writes name and words/lists	s
	Writes on a computer	s
	Reads library books	i
	Memorizes stories at age 5	i
	Other home maths	i
	Measures things	i
	Reads sentences	i
	Reads own books	i
	Other home writing activities at age 5	i
	Other home maths at age 5	i
	Plays at reading	i
	Favourite activity—nature/science	i
	Favourite activity—language	i

Competency (cont'd)	Home Activities Factor*	Strength of association*
Social Skills with Adults	Reads library books	s
	Other home writing activities	s
	Plays board games	s
	Other home reading	s
	Home reading at age 5	s
	Other home maths at age 5	s
	Writes on a computer	s
	Reads sentences	s
	Writes stories/poems	s
	Favourite activity—nature/science	i
	Other home maths	s
	Uses fractions	s
	Sounds out words	s
	Measures things	s
	Writes name and words/lists	s
	Reads own books	i
	Other home reading at age 5	i
	Favourite activity—language	i
	Memorizes stories at age 5	i
Communication	Reads library books	s
	Plays board games	s
	Reads sentences	s
	Other home writing activities	s
	Other home reading	s
	Reads own books	s
	TV watching amount	i
	Writes name and words/lists	s
	Writes stories/poems	s
	Uses fractions	s
	Measures things	s
	Favourite activity—language	s
	Sounds out words	s
	Writes on computer	s
	Other home maths at age 5	s
	Home reading at age 5	s
	Knows certain sounds match letters at age 5	s
	Other home maths	s
	Other home reading at age 5	i
	Favourite activity—nature/science	s
	Memorizes stories at age 5	i
Mathematics	Uses fractions	s
	Other home maths at age 5	s
	TV watching amount	s
	Reads library books	s
	Plays board games	s
	Family activity—literacy	s
	Sounds out words	s
	Reads sentences	s
	Measures things	s
	Other home writing activities at age 5	s
	Favourite activity—language	i
	Home reading at age 5	i
	Plays at reading	i
	Favourite activity—physical (negative)	i
	Writes stories/poems	i
	Writes name and words/lists	i
	Knows certain sounds match letters at age 5	i
	Reads own books	i
	Favourite activity—drawing/painting	i

Competency (cont'd)	Home Activities Factor*	Strength of association+
Literacy:		
Word Recognition	Reads library books	s
	Reads sentences	s
	Reads own books	s
	Other home maths age 5	s
	Favourite activity—physical (negative)	s
	Sounds out words	s
	Uses fractions	s
	TV watching amount	s
	Knows certain sounds match letters at age 5	s
	Favourite activity—language	s
	Plays board games	s
	Writes stories/poems	s
	Writes name and words/lists	s
	Other home writing activities at age 5	s
	Other home writing activities	s
	Family activity—literacy	s
	Other home reading	s
	Home reading at age 5	s
	Plays at reading	i
	Favourite activity—drawing/painting	i
	Memorizes stories at age 5	i
Invented Spelling	Other home maths at age 5	s
	Sounds out words	s
	Reads sentences	s
	Uses fractions	s
	Reads library books	s
	Favourite activity—language	s
	TV watching amount	s
	Plays board games	s
	Knows certain sounds match letters at age 5	s
	Other home writing activities at age 5	s
	Family activity—literacy	s
	Favourite activity—physical (negative)	s
	Home reading at age 5	s
	Reads own books	s
	Other home reading	s
	Write stories/poems	s
	Writes names and words/lists	s
	Other home writing activities	i
	Plays at reading	i
	Measures things	i
	Favourite activity—drawing/painting	i
Logical Problem Solving	Other home maths at age 5	s
	Uses fractions	s
	Plays board games	i
	Home reading at age 5	i
	Reads sentences	i
	Other home reading at age 5	i
	Knows certain sounds match letters at age 5	i
Fine Motor Skills	Reads library books	s
	Other home writing activities at age 5	s
	Reads own books	i
	Writes stories/poems	i

CONCLUSION

THE IMPACT OF EDUCATION AND HOME ON CHILDREN'S COMPETENCIES: COMPLEMENTARY OR CONVERGING?

In this conclusion, we discuss the main themes which emerged from the study children's first school year, and our analysis of the current, enduring, and fresh associations between family and educational experiences and resources, and their competency levels.

We have made two underlying assumptions. First, children are not manufactured products, whose differences we could fully map and account for by examining ingredients (or factors). This has been borne out for us by the fact that we cannot account for all the differences we find among children solely in terms of the factors we have been able to include in this study. This may seem common sense, in our celebration of individuality, but it is an important point to make with regard to what we should realistically expect of our ability to gauge the value or "productivity" of particular factors, especially education. Currently there is a renewed emphasis on evaluation in terms of outcomes, yet such outcomes can be difficult to capture fully. Our aim in this study is more modest and realistic: to explore whether home and education have different roles in the development of New Zealand children's competencies, and whether those roles change over time and in the course of other experiences. We also aim to chart what differences in home and educational resources and experiences exist for children, and to understand which of these make a difference for children.

Our second assumption is that children's abilities and talents are randomly distributed among the New Zealand population. If we are serious about wanting both society and individuals to benefit from their flourishing, then differences in resourcing which appear to have a bearing on children's competencies at various ages warrant a response, in order to narrow the gaps which are evident.

Our first report described largely complementary roles for home and early childhood education in children's lives. It concluded that differences in home resource levels and activities, and differences in early childhood education length and quality, did matter as far as children's competency levels were concerned. Our focus was largely, though not wholly, on current resources and experiences. In this report we were able to focus on the impact of both current and past resources and experiences.[50]

Effects Over Time

We find that children's competency levels after the first year at school are just as likely to reflect their prior experiences as their current experiences. Some of the impact of children's prior experiences was evident at the age of 5, but some of it is only visible a year later. As with early childhood education experiences, longitudinal analysis shows that the full impact of family resources and home experiences cannot be gauged by taking snapshots at a single point in time.

[50] Appendix 3 gives the full set of associations between children's competencies and educational and home factors, prior and current, found at age 6.

The Development of Children's Competencies

Between the ages of 5 and 6, children made the most competency gains in Mathematics and in Literacy. Only around 10 percent of the children could read at age 5; only around 10 percent could *not* read at age 6. Use of the hands for cutting and tracing became more precise. Overall scores for Social Skills, Communication, Perseverance, and Curiosity stayed the same or declined slightly. The reasons for this "plateau" may include differing demands of school and early childhood education centres, differences in the length of time the teachers had known the children, or differences in experience of assessment.

Individual children's scores at age 5 were not good predictors of their scores at age 6, with the exception of their performance in Mathematics, and, to a lesser extent, Literacy and Logical Problem-Solving. Children's Mathematics scores at age 5 were the best predictor of their overall performance at age 6.

In general we found that the children who had scored in the lowest quartile at age 5 were the least likely to score in the highest quartile at age 6. The children who had scored in the highest quartile at age 5 were the least likely to score in the bottom quartile at age 6. This finding raises some questions about the contribution which the first school year can make to children's relative competency levels. It also draws attention to the importance of the experiences and resources available to children in their preschool years.

Our analysis of the study children's competencies raises some questions about the predictability of children's competency levels after their first year of school, from their competency levels a year earlier. Only Mathematics showed what seemed to us to be a reasonable level of predictability. We suggested a range of reasons for the lack of predictability: a change in criteria for the teacher ratings, changes in our measures for literacy, and the malleability of children's development at this age. This lack of predictability between scores at age 5 and scores at age 6 matters if decisions which are crucial for the children—such as selection for school or class (resource allocation decisions)—are being made in the early years of school, or if school performance is to be gauged by the "value" it adds to children's performance. Our data suggests caution about the use of children's achievement data for these purposes. Our work in devising and finding appropriate competency measures at this age also convinces us that it is unreal to expect to be able consistently to find repeatable measures even for these two ages. In the real world, therefore, comparing children's assessments is likely to be "messy", and encourage concentration on the traditional areas of literacy and mathematics. Yet there is general acknowledgement from educationalists, parents and employers that while these are obviously necessary competencies, they are insufficient in themselves to produce competent citizens.

The Impact of Early Childhood Education

The results of our analysis show that early childhood education's positive contribution to New Zealand children's competency levels does not end when they move on to primary school. It is still visible after the children's first year at school. At age 6, ECE's contribution now takes a slightly different shape from the pattern which was evident when children were still attending an ECE centre. There is now little evidence of the earlier associations with social skills. The quality of programmes and activities, and the resources and safety, of the child's final ECE centre do not show associations which continue at age 6. Yet the range of associations with ECE attendance and quality has not diminished; in fact, new associations have come into focus. The next table sets out the enduring and fresh positive associations of prior ECE experiences and resources with the children's competencies at age 6.

Table 82

Enduring and Fresh Positive Associations of Prior Early Childhood Educational Experience with Children's Competencies at 6

Associations → ECE Factor↓	Enduring	Fresh
ECE Starting Age	-	Communication, Logical Problem Solving, Mathematics
ECE length	Mathematics, Fine Motor Skills	Word Recognition, Communication, Individual Responsibility, Logical Problem Solving
Patterns of ECE	-	Perseverance, Logical Problem Solving
ECE final type	-	Perseverance
Quality Staff-Child Interaction	Literacy[51]	Perseverance, Individual Responsibility
Children allowed to complete activities	-	Perseverance
ECE Socioeconomic Mix	Perseverance, Communication, Mathematics, Literacy, Logical Problem Solving	Social Skills with Adults

Length of ECE attendance, starting age, the quality of ECE staff:child interaction and the socio-economic mix of the children's final ECE service appear to have both current and enduring effects on children's competencies. Experiencing ECE for longer, with good quality staff:child interaction, and having the opportunity to complete activities (playcentres stood out on this last factor), aids children's ability in perseverance—a key competency or disposition for success in both learning and life. For example, our study showed that children who gave up or chose an easier activity when they encountered a problem in their reading and writing scored lower than others on Literacy and Mathematics.

There are clear implications here for both ECE policy and programme emphases. Literacy skills benefit from the quality of staff:child interaction in ECE centres and the length of time spent in ECE. They also benefit from a factor which may seem less amenable to change through policy emphasis: the ECE socio-economic mix. By definition, not every centre can serve mainly middle class communities, unless we have a much more egalitarian society.

What policy can do is aim to keep the social mix of ECE centres as broad as possible, through making access to early childhood education independent of family income. It can also aim to provide more support to ECE centres serving mainly low income communities, in order to ensure that such centres can offer high quality staff:child interaction. This would mean improving staff:children ratios in kindergartens, ensuring all ECE staff are well trained, and providing more resources to encourage mathematics, literacy, communication, logical problem-solving, and perseverance. Perhaps the Books in Homes scheme should be tried out in such ECE centres, and extended to a new "Games at Home" programme, without requiring such centres, which are

[51] "Literacy" here refers to both the Word Recognition and Invented Spelling measures.

already financially hard-pressed, to match the level of external support.[52]

Parents also thought that their children's ECE experience helped them make the transition to school. Perhaps this is where ECE's contribution to children's social skills played its part.

The Transition to School

Most children settled well to school, and parents were satisfied with their progress. Parental satisfaction was based mainly on the children's reading levels, but also took into account their ease in the school situation, and how well they settled into school. The children whose progress most concerned parents were on the lower reading book levels, had been unenthusiastic about starting school, had taken a while to settle into school, had changed schools during the year, were unhappy or lacked confidence, were not being sufficiently extended, or were boys. There was evidence of the need for better communication between teachers and parents about children's progress.

There was more dissatisfaction among the parents of children attending private or decile 9–10 schools. Yet children at private schools scored as well as others on all measures bar one, where they scored better, and children at decile 9-10 schools scored as well as others, and higher on some measures. These findings indicate that parental expectations play a part in satisfaction, sometimes outweighing actual achievement levels.

Children's approaches to difficulties encountered in their school work were not uniform, but showed signs of being shaped by the content of the school work, and its context. They could also be shaped by home experiences—for example, familiarity with dictionaries. The children's responses to difficulties encountered in their work demonstrate that teachers' role in showing them strategies which work is an important one, particularly for literacy.

Mathematical knowledge appears just as important as strategies in coping with problems encountered in mathematics learning. Such knowledge was rapidly gained by children over their first year at school, and saw a marked closing of the gaps which had existed between children attending ECE centres in mainly low income communities and children attending those in mainly middle income communities, as well as the gaps between Pakeha/European and Māori children, before they came to school. The first year of school also narrowed the gaps between children with English as a second language, and others.

Teachers' overall rating of children's initial school progress showed more coherence with the children's scores on the competency measures than did parents' views on their children's progress. A significant minority of parents did show some concerns about their child's initial school progress. These findings again highlight the importance of clear teacher-parent communication, regular parental contact with the child's teacher, and making the effort to communicate, difficult though it can sometimes be (Wylie 1994). The question of how to find a better match between initial school experience and (some) boys is also raised.

Differences in school resources did make a difference for children—but not always in a straightforward way. Generally, it was children attending the lowest decile schools who achieved less well on our competency measures than others. This finding confirms the results of the National Monitoring project and the IEA Mathematics study, and shows that this impact is occurring at the very start of school, as well as further on. Between them, these studies provide solid evidence that it is these schools—like the ECE centres serving low income communities—which stand in most need of external support, if they are to be able to close the gap between their students' performance and that of children at other schools.

What weight parental choice of school should be given is a policy question. As other studies of choice have found, this study showed that parental choice is complex, and related as much to provision—to what is locally available—as to reputation. A small number of parents did change

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[52] Most principals of the low SES schools in the Books in Homes scheme identify the cost to schools of the scheme as a major challenge (Elley 1997, p. 14).

their mind about their choice of secondary school for the study children over the year, indicating some volatility in the process of parental choice. But as we noted above, parental satisfaction appears to be shaped by expectations, as well as by children's achievement. These findings add weight to the questions which have been raised about the value to be gained by giving parental choice the central role in educational provision (Whitty 1997). The findings showing lower performance levels from children in the lowest decile schools indicate that policy which improves their resourcing and boosts the support which home activities can give to school achievement is more likely to improve children's results overall, and thus give a better return on investment.

Family Resources and Home Activities

The link between family socio-economic status and New Zealand children's school achievement is well documented (e.g. Nash and Harker 1994, Royal Commission on Social Policy 1988). The first phase of our study was able to show that differences in family income also made a difference for children's competencies even before children went to school. Including family resource levels in the study also enabled us to see what contributions early childhood education could make to children's competency levels, irrespective of their family income.

What this next phase of the study showed was that *prior* levels of home resources had as much bearing on children's competencies as current resources—and sometimes more. The level of family income at age 5 showed more associations with competency levels at age 6 than the current level, as did the age 5 proportion of family income spent on housing (indicating money available for other purposes), computer ownership, and prior parental occupations. Low family income levels while children are preschoolers appear to have enduring as well as current impacts on children's competency levels. There are implications here for social policy. In terms of children's competencies, it is difficult to over-emphasise the importance of adequate incomes for families with young children, through the availability of sufficiently well paid employment, or, if that is unavailable, sufficient government support. The availability of adequate and affordable housing is also important for the development of children's competencies.

A fundamental question is also raised by the range in family incomes, against a background of the recent widening of income inequality in New Zealand (Dalziel 1997). The low income families in the Competent Children study had available to them a third to a quarter of the incomes available to families in the highest income bracket. If such gaps in income remain, or widen still further, it will be difficult to close the related gaps which are evident in children's competency levels even from an early age. Thus children from low income homes will not be approaching life on a "level playing field", but will find their opportunities more circumscribed than others. Society will also draw on a narrower range of abilities and talents.

The next table shows that where a fresh association shows at age 6 between family resources at age 5 and children's competencies, it is likely to be with competencies which also showed such "lag" associations with children's ECE experiences, suggesting convergent roles for home and education. These competencies are Logical Problem-Solving, Communication, and, to a somewhat lesser extent, Perseverance. Perseverance and the Social Skills competencies are enhanced by children's prior activities.

Table 83

Enduring and Fresh Associations of Prior Family Resources and Home Activities with Children's Competencies at 6

Associations - ECE Factor ↓	Enduring	Fresh
Family Income at 5	Maths, Literacy, Perseverance Communication, Individual Responsibility Social Skills with Adults, Social Skills with Peers	Logical Problem Solving
Proportion of Family Income at 5 on Housing	Maths	Logical Problem Solving, Individual Responsibility, Literacy
Maternal occupation at birth first child	Perseverance, Maths, Literacy	Individual Responsibility, Communication, Social Skills with Adults
Paternal occupation at birth first child	Curiosity, Maths, Literacy Social Skills with Peers	Perseverance, Communication, Logical Problem Solving
Maternal qualification	Maths, Literacy, Curiosity	Perseverance, Communication, Logical Problem Solving
Family type age 5	-	Individual Responsibility
Family computer ownership age 5	Maths, Communication, Individual Responsibility	Perseverance, Curiosity Social Skills with Adults
Hearing age 5	Literacy, Logical Problem Solving, Social Skills with Peers	Perseverance, Communication, Social Skills with Adults, Maths
Read to once a day at 5	Literacy, Maths	Communication, Social Skills with Adults, Logical Problem Solving, Perseverance
Memorizes stories at 5	-	Perseverance, Communication, Social Skills with Peers, Social Skills with Adults, Word Recognition
Extra writing at 5	Maths, Literacy, Fine Motor Skills	Perseverance, Social Skills with Peers
Extra maths at 5	Maths, Literacy, Communication, Social Skills with Adults, Logical Problem Solving, Curiosity, Perseverance	Social Skills with Peers

Children's current home activities also matter, regardless of family income. Of particular benefit are those activities which do not focus only on the practice of skill or knowledge in a mechanical way, but which put that skill or knowledge to work in a practical way, or in social contexts. The activities which do this appear to have wider benefits for children, enhancing their levels of competencies generally, even if some of the benefits take some time to become evident, such as in social skills and perseverance. Some home activities—notably reading their own books, reading library books, and using fractions—appear to be of particular benefit for low income children. There are implications here for parents, teachers, and policymakers regarding the support children can be given at home, and the value of free access to public libraries.

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APPENDIX 1

Table 1

Correlations between Pairs of Competency Measures at Age 6

	Curiosity	Perseverance	Communication
Curiosity	1.00	0.43	0.62
Perseverance	0.43	1.00	0.67
Individual Responsibility	0.35	0.65	0.65
Social Skills with Peers	0.28	0.54	0.51
Social Skills with Adults	0.58	0.57	0.75
Communication	0.62	0.67	1.00
Mathematics	0.23	0.43	0.47
Fine Motor Skills	0.14	0.22	0.23
Word Recognition	0.20	0.38	0.42
Invented Spelling	0.23	0.36	0.43
Logical Problem Solving	0.26	0.27	0.32

	Individual Responsibility	Social Skills with Peers	Social Skills with Adults
Curiosity	0.35	0.28	0.58
Perseverance	0.65	0.54	0.57
Individual Responsibility	1.00	0.50	0.66
Social Skills with Peers	0.50	1.00	0.49
Social Skills with Adults	0.66	0.49	1.00
Communication	0.65	0.51	0.75
Mathematics	0.27	0.26	0.29
Fine Motor Skills	0.15	0.19	0.10
Word Recognition	0.30	0.30	0.28
Invented Spelling	0.23	0.24	0.29
Logical Problem Solving	0.13	0.21	0.18

	Word Recognition	Invented Spelling	Logical Problem Solving
Curiosity	0.20	0.23	0.26
Perseverance	0.38	0.36	0.27
Individual Responsibility	0.30	0.23	0.13
Social Skills with Peers	0.30	0.24	0.21
Social Skills with Adults	0.28	0.29	0.18
Communication	0.42	0.43	0.32
Mathematics	0.59	0.61	0.40
Fine Motor Skills	0.23	0.24	0.25
Word Recognition	1.00	0.64	0.30
Invented Spelling	0.64	1.00	0.25
Logical Problem Solving	0.30	0.25	1.00

	Mathematics	Fine Motor Skills
Curiosity	0.23	0.14
Perseverance	0.43	0.22
Individual Responsibility	0.27	0.15
Social Skills with Peers	0.26	0.19
Social Skills with Adults	0.29	0.10
Communication	0.47	0.23
Mathematics	1.00	0.22
Fine Motor Skills	0.22	1.00
Word Recognition	0.59	0.23
Invented Spelling	0.61	0.24
Logical Problem Solving	0.40	0.25

Principal Components Analysis

The result of this analysis is given in the next table. None of the loadings are particularly large, indicating that while the competency measures are intertwined, each competency is making its own contribution: none is reducible to another.

Table 2

Loadings from the Principal Components Analysis

	Comp.1	Comp.2	Comp.3	Comp.4	Comp.5
Curiosity	0.279	-0.226	0.256	0.538	-0.380
Perseverance	0.364	-0.144		-0.166	0.130
Individual Responsibility	0.329	-0.315	-0.133	-0.254	
Social Skills with Peers	0.292	-0.183		-0.403	0.426
Social Skills with Adults	0.348	-0.338		0.138	-0.115
Communication	0.400	-0.159		0.126	-0.115
Mathematics	0.297	0.413	-0.153	0.111	
Fine Motor Skills	0.158	0.234	0.656	-0.531	-0.435
Word Recognition	0.287	0.409	-0.293		
Invented Spelling	0.280	0.430	-0.297		-0.259
Logical Problem Solving	0.204	0.280	0.532	0.351	0.598
Cumulative percent variance accounted for	44 percent	58 percent	67 percent	75 percent	81 percent

The loadings in Component 1 accounted for 44 percent of the overall variance. The loadings ranged from 0.40 for Communication, to 0.16 for Fine Motor Skills. This is not a wide range. However, there is likely to be some difference between those competencies contributing more than 0.3, and those contributing less. Group one, the competencies contributing more than 0.3, are: Communication, Social Skills with Adults, Perseverance, and Individual Responsibility.

This is the same group found doing a similar analysis at age 5—with the exception of Social Skills with Peers, which at age 6 falls just below our 0.3 cut-off.

Looking at Component 2 in the same fashion, we find a second group in mathematics, Invented Spelling and Word Recognition, with Logical Problem Solving just below our cut-off point. This component accounted for an added 14 percent to the overall variance, slightly less than the 18 percent a similar component added at age 5.

At age 5, this group included Motor Skills.[53]

Component 3 shows Fine Motor Skills and Logical Problem Solving separated from the other competencies. This component accounted for nine percent of the total variance. The make-up of component 3 was rather different at age 5, when it was curiosity, social skills with peers, and logical reasoning that were distinguished.

[53] At age 5, this measure included gross motor as well as fine motor skills, which may account for the difference between the two ages in this analysis.

Factor Analysis

To explore this further, we undertook a factor analysis on the competencies. This is similar to the principal components analysis, but with less focus on individual competencies. Instead, the analysis assumes some general, possibly unmeasurable, factors underlying the competencies (such as intelligence, environment, experience, education etc).

We allowed for three factors. The cumulative variance accounted for is only 55 percent, a little more than the 49 percent accounted for by three factors at age 5.

Table 3

Loadings for the Three Factors Derived in the Factor Analysis

	Factor 1	Factor 2	Factor 3
Curiosity	0.309	0.150	0.721
Perseverance	0.688	0.340	0.205
Individual Responsibility	0.836	0.131	0.106
Social Skills with Peers	0.582	0.220	0.113
Social Skills with Adults	0.695	0.140	0.453
Communication	0.653	0.374	0.509
Mathematics	0.184	0.760	0.114
Fine Motor Skills	0.115	0.299	
Word Recognition	0.226	0.743	
Invented Spelling	0.157	0.751	
Logical Problem Solving		0.406	0.233
Cumulative percent variance accounted for	24 percent	45 percent	55 percent

Factor 1 shows a similar grouping making marked contributions as in Component 1 in the Principal Components analysis, with the addition of social skills with peers. The major contributors to the second factor are also those which were marked in Component 2. Curiosity is the largest contributor to factor 3, with communication and social skills with adults also marked—a different pattern from Component 3.

Another way of looking at the relationship between competencies is to look at the "uniqueness" shown by the Factor analysis. The less unique a competency, the more its results will be similar to the results on the other competency measures we have used. The lowest uniqueness values tend to belong to the competencies which have the highest correlation with other competency measures.

Table 4

Uniqueness of the Competency Measures at Age 6

	Uniqueness age 6
Communication	0.17
Individual Responsibility	0.27
Social Skills with Adults	0.29
Curiosity	0.36
Perseverance	0.37
Mathematics	0.38
Word Recognition	0.40
Invented Spelling	0.41
Social Skills with Peers	0.60
Logical Problem Solving	0.77
Fine Motor Skills	0.89

At age 5, this ranking of the uniqueness or distinctness of the competency measures showed a slightly different pattern. The difference may reflect changes in the scores between the two ages,

but may also point to real differences for 2 of the competencies. Both Perseverance and Curiosity appear to have less of a bearing on the other competency levels at age 5 than they do at age 6.

Table 5

Uniqueness of the Competency Measures at Age 5

	Uniqueness age 5
Social Skills with Adults	0.27
Communication	0.29
Mathematics	0.37
Individual Responsibility	0.41
Early Literacy	0.43
Curiosity	0.56
Social Skills with Peers	0.63
Perseverance	0.64
Logical Problem Solving	0.67
Motor Skills	0.77

Table 6

Quartile Movements between ages 5 and 6 for Social Skills with Adults, expressed as percentages of numbers in each quartile group at age 5

Social Skills with Adults percentages of age 5 quartile groups	1st quartile at age 6 percentage		2nd quartile at age 6 percentages		3rd quartile at age 6 percentages		4th quartile at age 6 percentages		percent
	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	
1st quartile at age 5	48.6	*(38.9)*	18.9	*(20.5)*	17.1	*(18.5)*	15.3	*(22.1)*	100
2nd quartile at age 5	43.2	*(38.9)*	18.2	*(20.5)*	20.5	*(18.5)*	18.2	*(22.1)*	100
3rd quartile at age 5	30.5	*(38.9)*	26.7	*(20.5)*	19.0	*(18.5)*	23.8	*(22.1)*	100
4th quartile at age 5	28.9	*(38.9)*	10.5	*(20.5)*	18.4	*(18.5)*	42.7	*(22.1)*	100

Table 7

Quartile Movements between ages 5 and 6 for Invented Spelling, expressed as percentages of numbers in each quartile group at age 5

Invented Spelling percentages of age 5 quartile groups	1st quartile at age 6 percentage		2nd quartile at age 6 percentages		3rd quartile at age 6 percentages		4th quartile at age 6 percentages		percent
	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	
1st quartile at age 5	54.8	*(25.0)*	19.2	*(25.7)*	19.2	*(27.4)*	6.8	*(21.9)*	100
2nd quartile at age 5	28.9	*(25.0)*	37.8	*(25.7)*	27.0	*(27.4)*	16.2	*(21.9)*	100
3rd quartile at age 5	14.7	*(25.0)*	26.7	*(25.7)*	32.0	*(27.4)*	26.7	*(21.9)*	100
4th quartile at age 5	11.4	*(25.0)*	18.6	*(25.7)*	31.4	*(27.4)*	38.6	*(21.9)*	100

Table 8

Quartile Movements between ages 5 and 6 for Logical Problem Solving, expressed as percentages of numbers in each quartile group at age 5

Logical Problem Solving percentages of age 5 quartile groups	1st quartile at age 6 percentage		2nd quartile at age 6 percentages		3rd quartile at age 6 percentages		4th quartile at age 6 percentages		percent
	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	
1st quartile at age 5	43.4	*(25.3)*	36.4	*(42.9)*	10.1	*(16.9)*	10.1	*(14.9)*	100
2nd quartile at age 5	25.4	*(25.3)*	47.5	*(42.9)*	18.6	*(16.9)*	8.5	*(14.9)*	100
3rd quartile at age 5	17.1	*(25.3)*	48.6	*(42.9)*	21.4	*(16.9)*	12.9	*(14.9)*	100
4th quartile at age 5	7.4	*(25.3)*	42.6	*(42.9)*	20.6	*(16.9)*	29.4	*(14.9)*	100

Table 9

Quartile Movements between ages 5 and 6 for Fine Motor Skills, expressed as percentages of numbers in each quartile group at age 5

Fine Motor Skills percentages of age 5 quartile groups	1st quartile at age 6 percentage		2nd quartile at age 6 percentages		3rd quartile at age 6 percentages		4th quartile at age 6 percentages		percent
	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	
1st quartile at age 5	51.9	*(38.2)*	15.2	*(18.9)*	21.5	*(27.4)*	11.4	*(15.5)*	100
2nd quartile at age 5	41.8	*(38.2)*	23.1	*(18.9)*	23.1	*(27.4)*	12.1	*(15.5)*	100
3rd quartile at age 5	35.7	*(38.2)*	21.4	*(18.9)*	31.4	*(27.4)*	11.4	*(15.5)*	100
4th quartile at age 5	16.1	*(38.2)*	14.3	*(18.9)*	37.5	*(27.4)*	32.1	*(15.5)*	100

Table 10

Quartile Movements between ages 5 and 6 for Communication, expressed as percentages of numbers in each quartile group at age 5

Communication percentages of age 5 quartile groups	1st quartile at age 6 percentage		2nd quartile at age 6 percentages		3rd quartile at age 6 percentages		4th quartile at age 6 percentages		percent
	actual	*(expected)*[1]	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	
1st quartile at age 5	39.2	*(25.8)*	31.6	*(24.8)*	21.5	*(29.9)*	7.6	*(19.5)*	100
2nd quartile at age 5	28.4	*(25.8)*	20.3	*(24.8)*	35.1	*(29.9)*	16.2	*(19.5)*	100
3rd quartile at age 5	20.9	*(25.8)*	25.6	*(24.8)*	32.6	*(29.9)*	20.9	*(19.5)*	100
4th quartile at age 5	11.9	*(25.8)*	20.3	*(24.8)*	30.5	*(29.9)*	37.3	*(19.5)*	100

[1] "expected" refers to the expected percentage of children in each category if the scores as at each age were independent of each other, i.e. had no relation to each other.

Table 11

Quartile Movements between ages 5 and 6 for Curiosity, expressed as percentages of numbers in each quartile group at age 5

Curiosity percentages of age 5 quartile groups	1st quartile at age 6 percentage		2nd quartile at age 6 percentages		3rd quartile at age 6 percentages		4th quartile at age 6 percentages		percent
	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	
1st quartile at age 5	40.0	*(29.2)*	34.1	*(30.5)*	17.6	*(20.1)*	8.2	*(20.1)*	100
2nd quartile at age 5	28.7	*(29.2)*	32.2	*(30.5)*	23.0	*(20.1)*	16.1	*(20.1)*	100
3rd quartile at age 5	22.9	*(29.2)*	28.6	*(30.5)*	24.3	*(20.1)*	24.3	*(20.1)*	100
4th quartile at age 5	21.4	*(29.2)*	25.0	*(30.5)*	14.3	*(20.1)*	39.3	*(20.1)*	100

Table 12

Quartile Movements between ages 5 and 6 for Perseverance, expressed as percentages of numbers in each quartile group at age 5

Perseverance percentages of age 5 quartile groups	1st quartile at age 6 percentage		2nd quartile at age 6 percentages		3rd quartile at age 6 percentages		4th quartile at age 6 percentages		percent
	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	actual	*(expected)*	
1st quartile at age 5	38.5	*(35.2)*	29.7	*(24.5)*	17.6	*(15.8)*	14.3	*(24.5)*	100
2nd quartile at age 5	45.6	*(35.2)*	24.1	*(24.5)*	10.1	*(15.8)*	20.3	*(24.5)*	100
3rd quartile at age 5	27.4	*(35.2)*	23.8	*(24.5)*	21.4	*(15.8)*	27.4	*(24.5)*	100
4th quartile at age 5	25.0	*(35.2)*	15.9	*(24.5)*	11.4	*(15.8)*	47.7	*(24.5)*	100

Table 13

Skill-scores[54] for the Capacity of Each of the Age 5 Competencies to Act as a Precursor for Age 6 Competency Performance

Age 6 → / Age 5 ↓	Curiosity	Perseverance	Individual Responsibility	Social Skills with Peers	Social Skills with Adults	Communication	Maths	Fine Motor Skills	Word Recognition	Invented Spelling	Logical Problem Solving
Curiosity	**0.29**	0.20	0.09	0.13	**0.31**	0.28	0.16	0.14	0.06	0.15	0.20
Perseverance	0.18	0.29	0.16	**0.27**	0.21	0.19	0.26	0.26	0.27	0.25	0.18
Individual Responsibility	0.23	0.14	0.11	0.25	0.23	0.23	0.20	0.06	0.21	0.26	0.06
Social Skills with Peers	0.07	0.27	**0.21**	0.20	0.11	0.19	0.24	0.01	0.29	0.19	0.03
Social Skills with Adults	0.28	0.18	0.12	0.22	0.25	0.23	0.17	0.01	0.23	0.22	0.09
Communication	0.27	0.19	0.06	0.25	0.28	0.35	0.32	0.08	0.27	0.28	0.25
Mathematics	0.26	**0.33**	0.19	0.24	0.24	**0.38**	**0.71**	0.25	**0.67**	**0.57**	**0.32**
Fine Motor Skills	0.14	0.29	0.13	0.14	0.14	0.26	0.21	**0.32**	0.24	0.25	0.16
Literacy	0.12	0.31	0.12	0.17	0.21	0.28	0.48	0.04	0.53	0.43	0.22
Logical Problem Solving	0.26	0.32	0.10	0.26	0.18	0.28	0.30	0.22	0.28	0.32	0.29

Note: figures in **bold** indicate the **highest** correlation for the age 6 competencies.

[54] This uses a penalty in the score computation which allows less penalty for "misses" by one quartile and gives a heavier penalty for changes from lowest to highest quartile groups and vice versa.

Table 14

Parental Views of Children's Progress and Their Children's Average Competency Scores[55]

Parental View→	Satisfactory progress (n=207)	Drawbacks to school (n=34)	Child not extended enough (n=31)	Child unhappy/ unconfident (n=14)	Unsatis-factory progress (n=33)
Competency↓	mean	mean	mean	mean	mean
Mathematics	28.57	28.54	26.84	26.64	24.45
Logical Problem Solving	7.62	7.24	6.97	7.36	7.30
Invented Spelling	43.55	43.44	39.55	40.21	29.45
Burt Word Recognition	21.46	19.76	17.42	15.21	12.30
Curiosity	14.16	14.44	13.52	12.71	13.61
Perseverance	18.29	17.94	16.71	17.00	15.85
Individual Responsibility	12.73	12.44	12.16	11.86	11.52
Social Skills with Peers	11.16	10.88	10.84	10.71	10.09
Social Skills with Adults	12.02	11.71	11.39	10.93	11.00
Communication	35.10	35.94	33.77	32.07	32.45
Fine Motor Skills	3.28	2.79	3.23	3.43	3.06

[55] These have not been standardised (converted to a scale of 100).

APPENDIX 2

Study Instruments

CHILDREN'S INTERVIEW AND TASKS AT 6 YEARS OLD

****CONFIDENTIAL****

DATE:_____

CHILD'S FIRST NAME:_____

1 CHILD'S ID:_____

2 CHILD'S SEX: 1 female
2 male

3 CHILD'S AGE: _____ YEARS _____ MONTHS

4 IS ENGLISH CHILD'S PRIMARY LANGUAGE?

1 no (identify primary language _____
2 yes

5 SCHOOL ID _____

6 TIME OF DAY: 1 AM 2 PM

7 WHERE I'VIEW/TASKS TOOK PLACE: 1 SCHOOL 2 HOME

8 COMMENTS/OBSERVATIONS/CHILD'S ATTITUDE TO TASKS: *(please write a description, then tick the box underneath that is closest to the child's overall approach to the interview)*

☐ a) quick ☐ b) confident ☐ c) restless ☐ d) afraid of getting things wrong
☐ e) too quick/rushed in ☐ f) withdrawn/shy ☐ g) unwilling to attempt things
☐ h) sought help/confirmation while doing tasks ☐ i) didn't seem to understand a lot of the questions
☐ j) matter of fact ☐ k) other

CODE USE ONLY: RESEARCHER ID _____

CODED BY:_____ DATA ENTERED BY:_____

CHILD INTERVIEW QUESTIONS

PART ONE: WARM-UP AND SELF-PERCEPTION QUESTIONS

METHOD: Say to the child:

"I'm going to ask you some questions and I am going to write down what you say so that I can remember it later."

A1) What is your favourite thing to do here at school?

a Outdoor physical
b Sociodramatic (dramatic play/dress-ups/dolls/family corner
c Aesthetic-creative (making things/painting/drawing/collage/clay)
d Literacy related (reading/writing/books/stories)
e Maths/science related (eg blocks,lego,puzzles),
f Social play/social interaction (playing with friends..)
g Exploration
h being here
p don't know/can't remember
q N/A
r missing
s other - describe:

_____ t 1 2 3
_____ 4 5 6
_____ 7 8 9

A2) What don't you like to do here?

a Outdoor physical (eg chasing/running/playing)
b Sociodramatic (dramatic play/dress-ups/dolls/family corner
c Aesthetic-creative (making things/painting/drawing/collage/clay)
d Literacy related (reading/writing/books/stories)
e Maths/science related (eg blocks,lego,puzzles)
f Social play/social interaction (playing with friends..)
g being hurt (eg `hitting')
h waiting
i being here
j nothing/I like everything
k work
l being told off
m listening to teacher
p don't know/can't remember
q N/A
r missing
s other - describe:

_____ t 1 2 3
_____ 4 5 6
_____ 7 8 9

A3) What do you help with here?

a tidy-up/clean
b setting up /putting out
c handing around
d other children
e messages
f schoolwork/answering teacher's questions (eg `reading')
g everything
h nothing
p don't know/can't remember
q N/A
r missing
s other - describe:

t 1 2 3
_____ 4 5 6
_____ 7 8 9
_____

A4) If you are trying to make something, but you can't do it, what do you do?

a Request help from teacher
b Request help from peer
c Persist
d Find something easier
e Give up/wait for teacher
f Make/do something else
g play
h Aggressive response (eg throw it away)
p don't know/can't remember
q N/A
r missing
s other - describe:

t 1 2 3
_____ 4 5 6
_____ 7 8 9
_____

A5) If you are trying to read something, but it's hard, what do you do?

a Request help from teacher
b request help from peer
c Persist
d use sounding out strategy
e use contextual strategy (eg `I go on to next word & try to think about it')
f find an easier book
g Give up/wait for teacher
h Do something else
i Aggressive response (eg throw it away)
p don't know/can't remember
q N/A
r missing
s other - describe:

_____ t 1 2 3

_____ 4 5 6

_____ 7 8 9

A6) If you are trying to write something and you find it hard, what do you do?

a Request help from teacher
b request help from peer
c Persist
d look at dictionary/words on walls
e change writing topic (`make another story')
f do a drawing
g give up/wait for teacher
h do something else
i Aggressive response (eg throw it away)
p don't know/can't remember
q N/A
r missing
s other - describe:

_____ t 1 2 3

_____ 4 5 6

_____ 7 8 9

A7) If you are trying to do a maths activity and it's hard, what do you do?

a Request help from teacher
b request help from peer
c Persist
d choose one I know how to do/easier one
e choose another activity
f give up/wait for teacher
h do something else
i Aggressive response (eg throw it away)
p don't know/can't remember
q N/A
r missing
s other - describe:

t 1 2 3

4 5 6

7 8 9

PART TWO: SOCIAL PROBLEM SOLVING

* Adapted from Spivack and Shure (1974)

1) Use pictures of 2 children and picture of bicycle

2) Name the two children with fictitious names

"[Child 1] has had the bicycle for a long time
Now [child 2] wants to play with it.
What can [child 2] say or do so that s/he can have a turn with the [bicycle]?"

B1) RESPONSE ONE:

a Request - social (eg please/excuse me/I want a turn/let's be friends)
b Request - justification (eg I havent had a turn for a while)
c negotiation (eg `what's say you have a turn, then i have a turn...)
d Ask adult to help
e ask child to help
f aggressive (verbal or physical)
g passive (give up/go away/just wait)
h do something else
p don't know/can't remember
q N/A
r missing
s other - describe:

_____ t 1 2 3

_____ 4 5 6

_____ 7 8 9

B2) **"... and what else could s/he say or do (if that didn't work)?"**

a Request - social (eg please/excuse me/I want a turn/let's be friends)
b Request - justification (eg I havent had a turn for a while)
c negotiation (eg `what's say you have a turn, then i have a turn...)
d Ask adult to help
e ask child to help
f aggressive (verbal or physical)
g passive (give up/go away/just wait)
h do something else
p don't know/can't remember
q N/A
r missing
s other - describe:

_____ t 1 2 3

_____ 4 5 6

_____ 7 8 9

PART THREE: SCHOOL ENTRY NUMERACY SKILLS (SENS)/MICHIGAN-NEW ZEALAND BSM EVALUATION REVISED STUDENT TASKS

(Source: Ministry of Education, Research Division; Jenny Young-Loveridge)

Write down child's answer in spaces provided (don't just mark right or wrong)

C1) FORMING SETS

EQUIPMENT: 20 coloured counters, same size, varied colours
One piece of blank paper

METHOD: Place the pile of 20 coloured counters in front of the child, and a blank piece of paper beside them.Say to the child: **"Could you put 2 counters on the paper?"**

a) ___ 2

Remove the counters and repeat the instructions for sets of 5, 9 and 13

b) ___ 5

c) ___ 9

d) ___ 13

SCORE 1: for each item passed

C1 TOTAL: _____

C2) NUMERAL IDENTIFICATION

EQUIPMENT: Set of digit labels: 2, 5, 8, 9, 14, 27, 84, 125, 346

METHOD: Place the digit labels in front of the child (order doesn't matter).
Point to the numeral 2. "Can you tell me what this number is?"

a) ___ 2

Repeat the task with 5, 8, 9, 14, 27, 84, 125, 346

b) ___ 5

c) ___ 8

d) ___ 9

e) ___ 14

f) ___ 27

g) ___ 84

h) ___ 125

i) ___ 346

SCORE 1: for each item passed

TAL: _____

C3) PATTERN RECOGNITION

EQUIPMENT: One dice

METHOD: Say **"Here's a dice."**

Without the child seeing which dots are uppermost, place the dice on the table with the side showing 2 dots uppermost, covered by your hand.

"Have a quick look, and tell me how many dots are on top."

Remove your hand for about 2 seconds and then quickly cover the dice with your hand, to discourage counting.

a) ___ 2

Repeat the task with 6 dots and 5 dots

b) ___ 6

c) ___ 5

To get credit, child must say the correct number reasonably quickly, with no evidence of having counted either the dots themselves, or counting a mental image of the dots.
SCORE 1: for each item passed

C3 TOTAL: _____

EQUIPMENT: NIL

METHOD: **"I would really like to hear you count. Could you start at one and count as high as you can. Say all the numbers you can think of."**

If the child doesn't start counting, start the child by saying **"one..."**, then wait for him/her to continue.

When the child stops, prompt with:

"Can you keep going?" ... OR ... **"What comes next?"** ... OR ... **"Do you know what comes after that?"**

Do not refer to a specific number, because that changes the nature of the task.

Record all numbers said and circle the highest correct number. If it appears that the child accidentally misses one number in a sequence, re-start the child just before the skipped number.

SCORE:
0 = </=4;
1 = 5 - 9;
2 = 10 - 19;
3 = 20 - 29;
4 = 30 - 49;
5 = 50 - 99;
6 = 100+

C4 TOTAL: _____

C5) SEQUENCE FORWARDS

EQUIPMENT: NIL

METHOD: **"When you were counting,**

what number came just after 5?" **a)** ___

" " **"...just after 16?** **b)** ___

" " **"...just after 29?** **c)** ___

" " **"...just after 84?** **d)** ___

Ask the questions above even if the child did not count as high as these numbers.

SCORE 1 for each question answered correctly

C5 TOTAL: _____

EQUIPMENT: 14 counters C6) ENUMERATION

METHOD: Place a disordered set of 9 counters in front of the child. **"Could you count these counters?"**

a) ___ 9

The child should say the correct numbers in order, in one-to-one correspondence, touching, pointing or visually marking each of the objects in the set.

Repeat the task with 14 counters

b) ___ (14)

SCORE 1: for each question answered correctly

C6 TOTAL: _____

TOTAL C1 - C6 = _____

C7) SHAPE SORTING

EQUIPMENT: 16 cardboard shapes of different colours and sizes:
4 triangles , 2 hexagons, 3 rectangles/oblongs, 3 squares, 4 circles

METHOD: Place the pile of 16 shapes with (4 triangles, 2 hexagons, 3 rectangles/oblongs, 3 squares, 4 circles) different variations and colours in front of the child.

Say: i **"See if you can pick out all the hexagons from these shapes and put them in a pile".**
(2 hexagons identified) a) ___

Return the shapes to the pile and say:

ii **"Now try and find all the rectangles/oblongs and put them in a pile".**
(3 oblongs identified) b) ___

Return the shapes to the pile and say:

iii **"Can you find all the triangles too?"**
(4 triangles identified) c) ___

SCORE 1: for each question answered correctly

C7 TOTAL: _____

C8) LINEAR PATTERNING

EQUIPMENT: 4 green squares, 4 red triangles, 4 yellow circles

METHOD: Arrange the following pattern in a line across a flat surface:

Square/Triangle/Circle/Square/Triangle/Circle/Square/Triangle/Circle

Place the remaining square, triangle and circle in a loose pile underneath.

"Can you put down the next 3 shapes to continue this pattern? (sweep hand along line from left to right)

If only one shape is put down, ask which shape comes next. Repeat as necessary.

SCORE 2: if pattern continued correctly without prompting
SCORE 1: if pattern continued correctly with some prompting about which shape comes next

C8 TOTAL: _____

C9) MENTAL COMPUTATION

1____ If I have two marbles and I give one away, how many do I have left? *(1)*

2____ If you went to the shop and bought two bananas and three oranges how many pieces of fruit would you have? *(5)*

3____ If you had seven sweets in a bag and you gave three away, how many would be left? *(4)*

4____ A farmer has six sheep in a paddock and decides to put another eight sheep in with them. How many sheep are there now in the paddock? *(14)*

5____ If I have a bunch of seven flowers and you give me another nine flowers, how many flowers will I have? *(16)*

C9 TOTAL: _____

D1) TRACING/DRAWING ROUND A SQUARE AND TRIANGLE CUTOUT (PDP).

MATERIALS: One 4" cardboard square; one 4" cardboard triangle.

Method: Give the child the square, a pencil and paper. Ask the child to trace around the shape. Then do the same with the triangle. (Use two separate sheets of paper.)

WRITE THE CHILD'S NAME UNDERNEATH EACH TRACING, AND ATTACH TO THE BACK OF THE INTERVIEW. THE SCORE WILL BE DONE LATER BY ONE PERSON.

D1 SCORE _____

D2) SCISSOR USE

MATERIALS: Children's scissors, suitable for left or right hand use; two clear outlines of a 4" X 4" square drawn on two separate sheets of paper.

METHOD: ask the child to cut out the square with the scissors. Allow one trial.

PUT THE CHILD'S NAME ON CUT-OUT, AND ATTACH TO THE BACK OF THE INTERVIEW, THE SCORING WILL BE DONE AFTERWARDS BY ONE PERSON.

D2 SCORE _____

12

PART FIVE: LANGUAGE TASKS

E1) BURT WORD RECOGNITION (attached)

E1 SCORE _____

COMPLETE THE CHILD/SCHOOL DETAILS ON THE TOP LEFT SIDE OF THE RECORD FORM AND NUMBER CORRECT BOX. ATTACH TO THE BACK OF THE INTERVIEW. SCORING WILL BE DONE LATER AT NZCER.

E2) INVENTED SPELLING TASK (attached)

PUT THE CHILD'S NAME AND ID NUMBER ON THE CHILD'S WORK SHEET AND ATTACH IT TO THE COVER SHEET. COMPLETE ALL COVER SHEET DETAIL OTHER THAN THE SCORE (POINTS). ATTACH TO THE BACK OF THE INTERVIEW. SCORING WILL BE DONE LATER AT NZCER.

E2 SCORE _____

PART SIX: LOGICAL PROBLEM SOLVING SKILLS

F) COLOURED PROGRESSIVE MATRICES

General procedure: Child has to choose which piece (choosing from 6) fits to complete the pattern.
Procedure: Introduce child to teaching item.

Say: **which of these patterns is the right one to go in here?**

Put in 1. and "Say this pattern doesn't go, which do you think fits?" If child chooses correct option, say "yes" and offer brief commentary on the other pieces - not enough dots, no dots etc.

Then go to first item and say "**see if you can find the pattern that fits in here**".
Continue through all 13 items.

Note: * If child turns board around, that's OK.
* Children may change mind and put another one in.

SCORING: WRITE DOWN THE NUMBER OF THE PIECE INSERTED BY THE CHILD AND WE WILL SCORE LATER.

a) _____
b) _____
c) _____
d) _____
e) _____
f) _____
g) _____
h) _____
i) _____
j) _____
k) _____
l) _____
m) _____
n) _____

TOTAL F SCORE _____

COMPETENT CHILDREN STUDY

MAIN CAREGIVER INTERVIEW -

WHEN CHILD IS 6

DATE OF INTERVIEW: _____ INTERVIEWER ID: _____

1. CHILD'S ID: _____ 2. CHILD'S SEX: 1 female
2 male

3. CHILD'S D.O.B: _____ 4. CHILD'S AGE: ____ yrs ____ mths

5. RESPONDENT'S SEX: 1 female
2 male
3 female & male (more than 1 respondent)

6. RESPONDENT'S RELATIONSHIP TO CHILD: 1 mother
2 father
3 other relative
4 other _____ 5 6 7
7 mother and father (caregiver and partner)

INTERVIEWER'S NOTES ONLY:

LENGTH OF TIME TO COMPLETE: _____

SUMMARY COMPLETED? ☐ yes ☐ no

COMMENTS:

INTERVIEWER'S INITIALS: _____ DATA ENTERED BY: _____

(after warm intro!)

1. **So, _____ is at (school name given in 5 year main caregiver interview)?**

1 yes
2 no
3 changed during year
4 2 schools mentioned at 5 years *(go to next question)*

or **(If 2 schools were mentioned at 5 year interview) You were looking at 2 schools last time we spoke. Which did you choose?**

_____

5 _____ (school number).

99 other _____

2. ***(If no)*, that's a different school from the one you mentioned last time we spoke. Can I ask you why you made the change?**

***or* (if 1 of 2 schools chosen) What made you choose that one?**

1 school facilities/environment
2 spatial/geographical
3 financial
4 disciplinary/climate
5 educational standards/reputation
6 school type
7 school mix
8 curriculum/programme/activities
9 personal
10 peer group/friends
11 to suit parent (eg close to work)
12 school/class size (incl individual attention)
13 by default
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

3. And how has s/he taken to school?

1 enthusiasm
2 matter-of-fact
3 took a while to settle in, OK now
4 bored
5 unhappy
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

4. How do you think _____'s early childhood educational experience helped her/him in the first month or so at school?

1 child used to routines/activities
2 child used to working with adults
3 child used to mixing with other children
4 knew other children from ece (at same school)
5 positive comment - unspecific
6 no help
7 ece staff: child ratio/group size better than school
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

5. What are the changes you've noticed in _____ since going to school?

1 more confident/independent
2 making more/closer/good friends
3 more socially adept
4 more enthusiastic about books, reading and writing
5 increased general knowledge
6 improved physical skills
7 bossier/too confident
8 negative (other)
9 positive (unspecified)
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

6a. Are you satisfied with _____'s progress so far?

1 yes
2 qualified yes
3 no
66 don't know/can't remember
77 N/A
88 missing

6b. (reasons for satisfaction/lack of satisfaction)

1 child making good progress
2 child not making good progress
3 child bored
4 child unconfident/unhappy about school
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

7. Are you comfortable talking with _____'s teacher about her/him?

1 yes
2 qualified yes
3 no

8. Have you and the teacher ever sorted out together any problems that (_____) was having?

1 no - no problems
2 no - didnt take problem to teacher
3 yes *(if yes, see question 9)*
4 problem discussed with teacher but not resolved (describe below)
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

9. (If yes to question 8 describe nature of problem discussed with teacher)

1 social-emotional (incl bullying)
2 health
3 cognitive/academic (child's progress or lack of it)
4 problem resolved via parent education
5 unspecified problem resolved
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

10. Have there been any other changes in _____'s life since we spoke last year, eg change of house, change in the people living at home, or other things that s/he has had to adjust to?

1 no
2 yes *(if yes, see question 11)*
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

11. (if yes to question 10 describe change)

1 moved house/moved area
2 change of job (either parent)/job stress/changed work hours
3 financial difficulty
4 accident/major illness/surgery of family member
5 death of family member/friend/pet
6 change in household composition (other than 7 or 8)
7 caregiver has new partner
8 caregiver & partner split up
9 increased demands of household member
10 parental stress/relationship problems
11 one parent often not home
12 long-term or permanent absence one parent
13 change of school
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

12a. Is there anything in (_____)'s life that is unsettling her/him at the moment?

1 no
2 yes *(if yes go to questions 12b and 13).*
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

12b. [If yes to 12a describe using codes 1-7, or 99].

1 friction/stress at home (incl marital problems)
2 change in family (eg reconstituting)
3 child picked on/bullied
4 change in job pattern of parent/s
5 child's friends moved
6 illness
7 school
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

13. [If yes to question 12 a] How is s/he coping with that?

1 makes greater demands on adult's attention/time
2 "acting out"/behavioural problems
3 withdrawn/isolated
4 health/sleeping problems
5 talks about issue a lot
6 seeks support from siblings/friends
7 appears to be coping well/no problems evident
8 situation hasn't arisen
9 unsettled/tearful
10 role-play/fantasy play
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

14. How is (_____)'s general health?

1 excellent/very good
2 * good (includes OK, pretty good)
3 * fair/not very good
4 * poor/bad
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

15. [**If health described as good, fair, poor or bad, capture/probe for details]*

1 listless/tired
2 chronic illness (including asthma)
3 chronic allergies
4 catches everything going
5 on medication (for: _____)
6 long-term effects of illness/injury evident
7 ear infections
8 frequent colds
9 takes a long time to recover/recuperate
10 seeing specialist
11 effects of accident
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____
COMMENTS:

_____ x 1 2 3
_____ 4 5 6
_____ 7 8 9

16. **I'm going to read out a list of reading activities that children sometimes do. Please let me know if (_____) ever does any of these things at home**
[read out - circle if answer is 'yes']

1 plays at reading/pretends to read (eg to dolls, composes story to fit pictures)
2 memorizes favourite stories
3 ask for favourite books to be read to him/her
4 looks at books by him/herself
5 sounds out words
6 reads words
7 reads sentences
8 reads his/her own books
9 reads books from the library
66 don't know/can't remember
77 N/A
88 missing

17. **Is there anything that (_____) does at home with reading that I haven't mentioned?**

1 no
2 yes *(if yes see question 18)*
66 don't know/can't remember
77 N/A
88 missing

18. (If yes to question 17 describe)

1 reads signs/brand-names
2 makes books and `reads' them
3 spelling
4 shows younger sibling how to read
5 reads in language other than English
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____
COMMENTS:

_____ x 1 2 3
_____ 4 5 6
_____ 7 8 9

19. And here are some activities involving writing - does (_____) ever do any of these things at home? ***[Read out - circle if answer is 'yes']***

1 copies family members when they are writing
2 copies school work (eg stories)
3 copies printed material (eg titles, words, individual letters)
4 makes up and writes lists, letters, signs, cards etc.
5 writes name or other words
6 asks what specific letters are/asks for help to spell words
7 writes stories/poems
8 writes on computer
9 takes part in TV/video programme involving writing
66 don't know/can't remember
77 N/A
88 missing

20. Is there anything that (_____) does at home with writing that I haven't mentioned?

1 no
2 yes *(if yes see question 21)*
66 don't know/can't remember
77 N/A
88 missing

21. (If yes to question 20 describe)

1 making books
2 keeping diary
3 teach sibling to write
4 use magnetic letters to make words (eg on fridge)
5 make maps/symbols
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____
COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

22. And thinking about numbers and counting, does (_____) ever do any of these things at home? ***[Read out - circle if answer is 'yes']***

1 counts out loud - "1, 2, 3, 4, 5" and so on
2 uses counting rhymes in word or song
3 counts things (eg buttons, cars, people etc)
4 plays board games
5 plays computer games or does computer activities with numbers
6 uses numbers when involved with cooking, building etc.
7 measures things/people (eg own height, weight)
8 talks about halves, quarters and so on
9 tells how old s/he is
10 tells or tries to tell the time
11 says times-tables
12 subtracts things
13 adds things
14 adds money correctly
66 don't know/can't remember
77 N/A
88 missing

23. Is there anything that (_____) does at home with numbers that I haven't mentioned?

1 no
2 yes *(if yes see question 24)*
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____
COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

24. (If yes to question 23 describe)

1 uses/memorises phone numbers/rings people
2 reads letter box numbers
3 plays cards/dominoes/pick up sticks
4 uses calculator
5 knows money denominations
6
7
8
66
77
88
99 other -describe _____

25. And what's (_____)'s <u>favourite</u> activity at home?

1 physical (incl sports)
2 reading/writing/language
3 drawing/painting
4 constructing/building/making things
5 nature/science
6 puzzles/maths
7 computer (games or wordprocessing etc
8 watching TV/video
9 social - activities with friends
10 eating
11 make-believe
12 helping
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____
COMMENTS:

_____ x 1 2 3
_____ 4 5 6
_____ 7 8 9

26. *[Ask even if no tv in home, child may watch elsewhere]*
Roughly how many hours of television or video does (_____) watch during weekdays?

1 none
2 up to 1 hr
3 between 1 and 2 hrs
4 between 2 and 3 hrs
5 between 3 and 4 hrs
6 between 4 and 5 hrs
7 more than 5 hrs
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

27. **And would that be more, less, or about the same on a weekend day?**

1 more
2 less
3 about the same
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

28. **If you see that (_____) is having real difficulty with something s/he is doing (like reading, or making something), what would you generally do?**

1 Offer encouragement
(concern to address emotions like anger or panic which stop child persevering)
2 Child unwilling to accept help
3 Wait for child to ask for help/child will decide if wants help
4 Tell child to do something else
5 Depends on caregiver's mood/patience/time available
6 React negatively (criticism or punishment)
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

29. **What kind of behaviour do you and your partner find unacceptable from (_____)?**

1 disobedience
2 bullying
3 physical fighting
4 stealing
5 lying
6 being rude to parents
7 being rude to other people
8 not finishing meals
9 not tidying room
10 whining/being dependent
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

30. If _____ doesn't tidy her/his room, what do you do?

1 ignore
2 cut back pocket money
3 cut treat/nice activity
4 send child to room/time-out
5 demand apology
6 give child another task/chore to do
7 physical punishment
8 tell child off
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

31. If _____ lies, what do you do?

1 ignore
2 cut back pocket money
3 cut treat/nice activity
4 send child to room/time-out
5 demand apology
6 give child another task/chore to do
7 physical punishment
8 tell child off
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

32. If _____ fights another child, what do you do?

1 ignore
2 cut back pocket money
3 cut treat/nice activity
4 send child to room/time-out
5 demand apology
6 give child another task/chore to do
7 physical punishment
8 tell child off
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

33. What sorts of things do you often do with (_____) as a family?
[IF NO ANSWERS FORTHCOMING, SAY..."To help your memory, think back to last weekend..."]

1 physical activities (eg. sport, walking, swimming)
2 socio-dramatic activities
3 aesthetic-creative activities
4 literacy-related activities (eg. reading, visits to library)
5 maths-science related activities
6 social-based activities (includes general play with siblings/whanau)
7 exploration/special events/trips/holidays
8 routine housework/gardening/home activities/shopping
9 watch TV/go to movies
10 school-related activities
11 animals
12 church/community activities
13 don't do much as a family
14 negative experiences
15 music/dance
16 eat out (cafes, Mcdonalds)
17 related to parent/s work
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

34. Who cares for (_____) during school holidays, before and after school, or when _____ is sick?

1 friend/s
2 child's grandparent(s)/other relative(s)
3 parent
4 former/current caregiver/ECS
5 school-related programme
6 caregiver not working those hours
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3
_____ 4 5 6
_____ 7 8 9

35. What part do members of your own extended family/whanau play in (_____)'s life?

1 no part - no contact
2 limited part - not feasible due to distance
3 small part - regular contact
4 small part - irregular contact
5 large part - regular contact
6 large part - irregular contact
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3
_____ 4 5 6
_____ 7 8 9

36. What part do members of your partner's extended family/whanau play in (_____)'s life?

1 no part - no contact
2 limited part - not feasible due to distance
3 small part - regular contact
4 small part - irregular contact
5 large part - regular contact
6 large part - irregular contact
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

[If ex-partner (father/mother of child) does not live with (_____)

37. Does (_____) still see his/her father/mother?

1 no *(go to question J1)*
2 yes
66 don't know/can't remember
77 N/A
88 missing

38. What sorts of things do they do together?

1 physical activities (eg. sport, walking, swimming)
2 socio-dramatic activities
3 aesthetic-creative activities
4 literacy-related activities (eg. reading, visits to library)
5 maths-science related activities
6 social-based activities (includes general play with siblings/whanau)
7 exploration/special events/trips/holidays
8 routine housework/gardening/home activities/shopping
9 watch TV/go to movies
10 school-related activities
11 animals
12 church/community activities
13 don't do much as a family
14 negative experiences
15 music/dance
16 eat out (cafes, Mcdonalds)
17 related to parent/s work
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENT:

_____ x 1 2 3
_____ 4 5 6
_____ 7 8 9

39. How do they get on?

1 well
2 don't see each other much, so not sure
3 don't get on
4 varies
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3
_____ 4 5 6
_____ 7 8 9

40. Are you in paid work at the moment, either part-time or full-time?

1 no *(go to Q43)*
2 yes, *full-time* (30 hours or more per week)
3 yes, *part-time/temporary work from time to time*

41. 1___ **What sort of work do you do?** job 1: _____

2___ job 2: _____

(If more than two jobs, identify the two jobs s/he spends most time at)

42. Roughly how many hours a week do you work?

_____ per week

43. Do(es) your job(s) involve shift work, irregular or particularly long hours, relief or weekend work, or travel?

1 no/only rarely
2 yes
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

44. ***[If respondent is not in paid work.]*** **Could you tell me why not?**

1 because s/he has children
2 prefer being at home/with children
3 sense of obligation/duty to children/family
4 lack of work available
5 lack of family support
6 lack of pre/afterschool care
7 lack of ece care for siblings
8 lack of qualifications/experience
9 refused to answer
10 studying
11 illness
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

45. Is your partner in paid work at the moment, either part-time or full-time?

1 no
2 yes, *full-time* (30 hours per week or more)
3 yes, *part-time*
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

46. 1____ What sort of work does s/he do? job 1: _____

2____ job 2: _____

(If more than two jobs, identify the two jobs s/he spends most time at)

47. Roughly how many hours per week does s/he work?

_____ hours per week

48. Does your partner's job involve shift work, irregular or particularly long hours, relief or weekend work, or travel?

1 no/only rarely
2 yes
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

49. I am going to read you a list of things which are sometimes found in people's homes. Not everybody has these things, but could you please tell me if you have a:

[circle if answer is 'yes']

1 telephone
2 television
3 washing machine
4 stereo
5 video
6 computer
7 car
8 second car
66 don't know/can't remember
77 N/A
88 missing

50. Do you get a daily newspaper regularly?

1 no
2 yes
3 weekends/only
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

51a. Is there any other newspaper or magazine that you buy on a regular basis?

1 no
2 yes *[if yes go to question 51b].*
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

51b. [If yes to 51a describe using codes 1-7 or 99]

1 tabloid: eg Sunday News, International Express
2 middle-brow: eg Sunday Times, Weekly telegraph
3 liberal: eg Listener, Guardian weekly
4 work-related/business: eg NBR, Independent, Straight Furrow
5 free: eg Contact, local paper
6 religious paper (eg New Zealandia)
7 sports paper
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

52. Approximately how much of your family's monthly income, after tax has come off, is spent on housing (including rates, insurance etc) - one quarter, one third, one half, etc?

1 one quarter or less
2 one third
3 one half
4 more than half
5 part of business mortgage/loan (e.g. farm)
6 zero - mortgage-free
7 refused
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

53. What are the main sources of income in your family?

1 wages or salary
2 self-employed earnings, or proceeds of business
3 Family Support
4 other benefit
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

54. I am going to read out a list of different incomes. Thinking about your family, please tell me the range your family income falls into..., before tax

1 over $80,001 per year
2 between $70,001 - 80,000 per year
3 between $60,001 - 70,000 per year
4 between $50,001 - 60,000 per year
5 between $40,001 - 50,000 per year
6 between $30,001 - 40,000 per year
7 between $25,001 - 30,000 per year
8 between $20,001 - 25,000 per year
9 between $15,001 - 20,000 per year
10 between $10,001 - 15,000 per year
11 between $7,501 - 10,000 per year
12 between $5,001 - 7,500 per year
13 between $2,501 - 5,000 per year
14 $2,500 or less per year
15 refused to answer
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

55. How much education do you want (_____) to receive?

1 as far as wants to go/completely up to child/as far as capable of going
2 university/other tertiary
3 education in widest sense
4 enough to be worthwhile
5 leave before School C
6 School Cert minimum
7 end of secondary
8 reluctance to push child
9 "a lot/the best/everything"
66 don't know/can't remember/haven't thought about
77 N/A
88 missing
99 other - describe: _____

56. Is there anything you can think of that might stop (_____) from getting the kind of education you would like him/her to receive?

1 child's desire/direction/choice
2 money
3 government policy changes
4 could get pregnant
5 limited skills/ability
6 child's temperament/attitude
7 lack of partner's support
8 family problems
9 teachers/curriculum not responsive to child's needs
10 health related problems
11 choice of school unavailable
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

Thinking now about secondary school...

57. Have you decided yet what secondary school (_____) is likely to enrol at?

1 no *(go to question 60 (final comments)*
2 yes
3 two or more schools being considered
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

58. Can you tell me what school that is? _____

_____ (school number: NZCER to add)

[If considering two or more, which school is it most likely to be? _____]

59. Can you tell me why (_____) is likely to go to (school name)?

1 school facilities/environment
2 spatial/geographical
3 financial
4 disciplinary/climate
5 educational standards/reputation
6 school type
7 school mix (ethnic/socio-economic; eg `from nice homes')
8 curriculum/programme/activities
9 personal
10 peer group/friends
11 to suit parent (eg close to work/parent's own school)
12 school size/class size
13 by default (no choice)
66 don't know/can't remember
77 N/A
88 missing
99 other - describe: _____

COMMENTS:

_____ x 1 2 3

_____ 4 5 6

_____ 7 8 9

60 To conclude our interview is there anything else about _____ that you would like to tell me, anything we haven't covered that you would like to tell me about?

COMMENTS:

_____ a 1 2 3

_____ 4 5 6

_____ 7 8 9

_____ b 1 2 3

_____ 4 5 6

_____ 7 8 9

Thankyou that was my last question.

Check names of 3 contacts given at 5 year main caregiver interview. Say we will be in contact again with summary of results.

20/03/95

COMPETENT CHILDREN

ADULT'S PERCEPTIONS OF CHILDREN'S COMPETENCY AT 6 YEARS

DATE OF INTERVIEW: _____ INTERVIEWER ID _____

CHILD'S FIRST NAME :_____ RESPONDENT'S INITIALS _____

1. CHILD'S ID _____ 2. RESPONDENT'S TITLE _____

3. CHILD'S AGE: ___ yrs ___ mths 4. CHILD'S SEX: a) female b) male

5. _____ SCHOOL NO. *(NZCER to give to interviewer)*

6. _____ NUMBER OF CHILDREN IN CLASS AT **TIME OF INTERVIEW**
(If child is in 2 classes, get number for each, and divide by 2)

7. _____ NUMBER OF TEACHERS IN CLASS

8. CLASS TYPE a) SINGLE-CELL b) OPEN PLAN

9. _____ NUMBER OF CHILDREN IN CLASS WITH ENGLISH AS SECOND LANGUAGE

10. _____ NUMBER OF CHILDREN ON SCHOOL ROLL

11. _____ PROPORTION OF PAKEHA/EUROPEAN CHILDREN ON SCHOOL ROLL

12. _____ PROPORTION OF MAORI CHILDREN ON SCHOOL ROLL

13. _____ PROPORTION OF PACIFIC ISLAND CHILDREN ON SCHOOL ROLL

14. _____ PROPORTION OF ASIAN CHILDREN ON SCHOOL ROLL

15. SOCIO-ECONOMIC MIX OF SCHOOL a) wide range b) mainly middle-class
c) low-middle class d) mainly low socio-economic
e) other _____ f) decile number_____

16. IS ENGLISH THE CHILD'S PRIMARY LANGUAGE?

a) no - please identify primary language:_____ 123456789
b) yes

17. HOW LONG HAS RESPONDENT TAUGHT THIS CHILD? ___ mths
(If 2 teachers, write down both, but put longest in slot above)
COMMENTS:

INTERVIEWER'S INITIALS: 185 DATA ENTERED BY _____

This interview concentrates on building up a picture of _____. I will ask you to let me know if the descriptions I am going to read out to you would describe him/her [POINT TO SHOW CARD] Never, Hardly Ever, Sometimes, Often, or Always.

There are five main sections: Exploration (covering inquisitiveness and perseverance), Social-Emotional (covering independence, and relationships with children and adults), Communication, Achievement, and your experience of the child's parents.

I. EXPLORATION

Inquisitiveness

a)Is (____) a curious child? That is, does s/he ask a lot of questions and/or take things apart to find out how they work?

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

b) Does (____) explore and/or ask a lot of questions about how people, animals and plants grow and change?

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

c) Does (____) like to work with things that fit together, such as mathematical games, jigsaw puzzles?

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

d) Does (____) get excited about new experiences?

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

Perseverance

e) **When (_____) has a problem with a puzzle or some other educational game or resource that fits together, does s/he keep on trying until s/he gets it together?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

f) **If (_____) is doing something creative, does s/he persist with solving a problem, even when things go wrong for a while?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

g) **Can (_____) get another child to let her/him have a turn with something by asking?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

h) **Does (_____) have a good concentration span when working in the classroom with things that interest her/him?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

i) **Does (_____) make an effort to do something, even if s/he doesn't feel confident about it?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

II. SOCIAL-EMOTIONAL

This section of the interview is about independence, and relationships with adults and other children.

Self

a) **Does (_____) generally show independence with going to the toilet, keeping track of her/his things, and so on?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

b) **Can (_____) clearly convey her/his needs and feelings?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

c) **Does (_____) follow your class routines without having to be reminded?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

Peers

d) **When (_____) is playing with other children, does s/he take turns and share, understanding rules and fair play?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

e) **Can (_____) play cooperatively with other children for extended periods without requiring adult intervention, that is, can s/he sort out any differences between her/himself and other children?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

f) **Can s/he put her/himself in other children's shoes - see another child's point of view?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

Adults

g) **Does (_____) hold conversations confidently with adults, including expressing her/his own points of view?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

h) **Does (_____) accept adult explanations about acceptable behaviour?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

i) **Does (_____) ask for help and/or information when s/he needs it?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

III. COMMUNICATION

_____'s ways of communicating will be covered in this section: her/his ability to understand, listen and remember and how s/he gets her/his ideas across.

Receptive

a) **Is s/he able to remember and carry out a simple instruction after hearing it only once?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

_____ f 1 2 3
_____ 4 5 6
_____ 7 8 9

b) **If s/he does not understand what someone has said, will s/he ask for it to be repeated or explained again?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

_____ f 1 2 3
_____ 4 5 6
_____ 7 8 9

c) **Does s/he follow what is being talked about in a conversation, and stay on the same topic?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

_____ f 1 2 3
_____ 4 5 6
_____ 7 8 9

d) **Does s/he usually understand the stories you read to the class?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

_____ f 1 2 3
_____ 4 5 6
_____ 7 8 9

e) **Can s/he be relied on to pass simple messages from one person to another without getting the message mixed up?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

Expressive

f) **Is her/his speech easily understood, even by people who haven't met her/him before?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

g) **Does s/he vary her/his speech to help get her/his ideas across, e.g. talk loudly, softly, enthusiastically, depending on the situation?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

h) **Does s/he experiment with language, e.g. by using new words or expressions?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

i) **Does s/he clearly explain about things s/he has seen or done, so that you get a very good idea of what happened?**

☐ a) Never ☐ b) Hardly ever ☐ c) Sometimes ☐ d) often ☐ e) always

f 1 2 3
4 5 6
7 8 9

IV ACHIEVEMENT

Thinking now about how _____ is getting on at school

a) How would you describe _____'s overall progress since s/he came to school?

☐ a) minimal ☐ b) slow ☐ c) average/medium
☐ d) average , but very good in some areas ☐ e) very good/excellent

b) What are the curriculum areas where s/he is strongest?

(check which kind of writing they mean if they mention it; and if they mention language, ask them what that covers)

a reading
b maths
c storywriting
d handwriting/printing
e oral language
f music/art
g physical education
h spelling
i science
j social studies
k none
w don't know/can't remember
x N/A
y missing
z other - describe

_____ 1 1 2 3
_____ 4 5 6
_____ 7 8 9

c) What are the curriculum areas where s/he is having difficulty?

a reading
b maths
c storywriting
d handwriting/printing
e oral language
f music/art
g physical education
h spelling
i science
j social studies
k none
w don't know/can't remember
x N/A
y missing
z other - describe

_____ 1 1 2 3
_____ 4 5 6
_____ 7 8 9

d) What are _____'s other strengths - in terms of character, how s/he conducts her/himself in your class or around the school?

a mature
b reliable
c leader
d kind/warm-hearted
e organized
f willing
g tries hard
h outgoing
i none
w don't know/can't remember
x N/A
y missing
z other - describe

_____ 1 1 2 3
_____ 4 5 6
_____ 7 8 9

e) What are _____'s other areas of difficulty, or weakness - in terms of character, how s/he conducts her/himself in your class or around the school?

a passive (incl shy, too dependent)
b aggressive
c unreliable
d self-centred/wilful
e won't try
f poor self-concept/low self-esteem/insecure
g lacks friends
h spoilt
i impatient
j lives in own world
k none
z other - describe

_____ l 1 2 3
_____ 4 5 6
_____ 7 8 9

f) How would you describe her/his gross motor skills - eg ball throwing, balancing?

☐ a)nonexistent ☐ b) poor ☐ c) all right ☐ d) good ☐ e) very good/exc.

_____ f 1 2 3
_____ 4 5 6
_____ 7 8 9

g) How would you describe her/his fine motor skills - eg cutting out, tracing

☐ a)nonexistent ☐ b) poor ☐ c) all right ☐ d) good ☐ e) very good/exc.

_____ f 1 2 3
_____ 4 5 6
_____ 7 8 9

h (i) Could you please give me her/his reading book level:

a magenta
b red
c yellow
d dark blue
e green
f orange
g blue
h purple
i dark yellow/gold
j further on than gold
w don't know/can't remember
x N/A
y missing

h (ii) Is she/he :

a doing reading recovery now? ☐ a) Yes ☐ b) No

b to receive reading recovery? ☐ a) Yes ☐ b) No

☐ c) If resources allow ☐ d Not yet decided/assessed

☐ e) not applicable

f 1 2 3

4 5 6

7 8 9

i) What has her/his attendance been like?

a good
b satisfactory
c poor
w don't know/can't remember
x N/A
y missing

j) If s/he has had poor attendance, why do you think this is?

a tends not to show up in bad weather
b illness/poor health
c mobile family
d family commitments
e lack of family finances (lack of car, money for transport, clothes, shoes etc)
f lack of home supervision (eg no-one getting up in morning)
w don't know/can't remember
x N/A
y missing
z other - describe

g 1 2 3

4 5 6

7 8 9

V HOME/SCHOOL RELATIONS

Finally, a few questions about your experience of _____'s family

a) Do you see _____'s mother/main caregiver?

☐ a) Yes, regularly ☐ b) sometimes
☐ c) rarely ☐ d) never

b) Do you see _____'s father/main caregiver?

☐ a) Yes, regularly ☐ b) sometimes
☐ c) rarely ☐ d) never

c) How would you describe the relationship between you and _____'s parent(s)/main caregiver(s)?

☐ a) very difficult ☐ b) difficult ☐ c) satisfactory
☐ d) good ☐ e) very good/excellent

_____ f 1 2 3
_____ 4 5 6
_____ 7 8 9

d) How do you think your relationship with ———'s parent(s)/caregiver(s) has affected what ____ has got out of school?

a parental/caregiver interest helps child's confidence
b teacher gains useful knowledge about child from parents
c work together on problems faced by child
d positive (unspecified)
e negative impact
w don't know/can't remember
x N/A
y missing
z other - describe

_____ f 1 2 3
_____ 4 5 6
_____ 7 8 9

e) Is there anything else about (_____) that you would like to tell me?

_____ a 1 2 3
_____ 4 5 6
_____ 7 8 9

_____ b 1 2 3
_____ 4 5 6
_____ 7 8 9

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