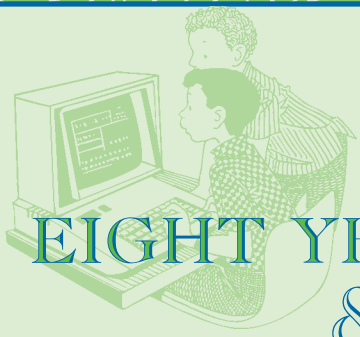

EIGHT YEARS OLD & COMPETENT

THE THIRD STAGE OF
THE COMPETENT CHILDREN PROJECT
— A SUMMARY OF THE MAIN FINDINGS

CATHY WYLIE

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What is the Competent Children Project?

The Competent Children project, funded by the Ministry of Education, is following a group of about 500 New Zealand children from around the age of 5, when they were still in early childhood education, until they leave school.[1]

The main aim of the project is to explore the development of these children's competencies, to see if home and education have different roles, and whether these roles change over time and as the children have 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 them.

The Competencies

For this project, we chose 10 different areas which are important for children's own wellbeing, for school achievement and continued learning, and for taking part in society and paid work. These 10 areas of competency are:

- literacy (reading comprehension, vocabulary, writing)
- mathematics
- logical problem-solving,

[1] At age 5 and 6 the study included some 300 children; at age 8 we brought in some 200 children from a related parental survey done at the same time as our first stage of this research, when the children were also age 5.

- ❒ communication
- ❒ curiosity
- ❒ perseverance
- ❒ social skills with other children
- ❒ social skills with adults
- ❒ individual responsibility (taking care of oneself)
- ❒ fine motor skills.

We were able to measure what children could do in these 10 areas, by observing them at work or giving them specific tasks to do, then scoring how well they performed, or by asking the children's teachers, who had seen the children in action in their classrooms and in the school playground, to rate their approach to work and other people.

This Stage of the Project

The first two stages of the research looked at the children at age 5 and age 6.[2] In this third stage, we measured the children's performance at age 8, when they were in their third year of school. We compared the children's scores at age 8 with their scores at ages 5 and 6.

We then looked at what might be making a difference to children's scores at age 8. Our analysis included some of the things children experienced at this age, such as the type of school

[2] Please see the back pages for details of the Competent Children project's publications. The full report of the age 8 stage is *Competent Children at 8—Families, Early Education, and Schools. (NZCER)*

they went to, their out-of-school activities, and their reading at home. It also included some experiences from the time before they started school, and from the time they were 6, such as their early childhood education, or their family's income at age 5, the amount of television they watched, and their access to a computer at home.

The Children at Age 8

At age 8, the study children had an average reading age of 8 to 8½ years, and an average score on the Burt vocabulary test, which is also used for adults, of 52 words out of 110. Most of the children could recognise fractions, read a simple bar graph, work out tasks requiring them to subtract, add, and multiply items under 10, and count money. Most children could cut out a circle, draw a straight line, and copy freehand a circle and triangle.

Most children were usually good listeners—they could pass on messages accurately and follow instructions if they heard them once—and many gave clear explanations or descriptions when they spoke. They usually had a good concentration span when they worked on things that interested them. Around half were less likely to keep making an effort if they struck a problem in doing something creative, or felt unconfident about what they were doing.

Almost all the children showed respect for their teachers, and many initiated contact with their teachers if they needed help or information. Most followed class routines without having to be

reminded, and got on with their work without distraction. But quite a few acted without thinking of the consequences—even children who otherwise were good at taking responsibility for themselves!

Few children lost their temper often when working with peers, or were led astray by peer pressure. Most children were good at making and keeping friendships. Relatively few children would work with other children over an extended period of time without needing adult intervention.

The Development of Children's Competencies from Age 5 to Age 8

Are the scores of children just before they start school a good guide to how they will perform at age 8? While we found that age 5 scores gave some indication of age 8 scores, they could not actually predict their age 8 score. Children's performance was most consistent for Mathematics, followed by Literacy, Communication, and Perseverance. Age 6 scores showed better consistency with age 8 scores for these competencies, indicating that children's performance does become more consistent over time.

Mathematics, Literacy, Communication, Perseverance, and Individual Responsibility turned out to be the competencies which were the best indicators of children's overall performance at age 8.

We divided the children's scores in the different competencies into 4 bands, and looked at how many children moved from one band to another between the ages of 5 and 8.

While many children did move up or down, they usually moved only from one band to the next band. Children who had scored in the lowest band at age 5 were the least likely to score in the 2 highest bands at age 8, particularly for Mathematics, Literacy, and Communication. This pattern was even stronger when we compared age 6 and age 8 scores, indicating that starting school with low scores may disadvantage children, and make it harder for them to make progress through school.

The children who had scored in the highest band at age 5 and age 6 were the least likely to score in the lowest band at age 8. Between the ages of 6 and 8, we also saw more stability in children's scores for those in the two middle bands.

Different Children—Different Patterns

There are some different patterns for different children too.

Gender

Boys' scores at age 8 were lower than girls' scores for most competencies. They scored the same for Mathematics, Logical Problem-Solving, and Fine Motor Skills, and better for Curiosity. These gender differences remained regardless of family income or mothers' qualifications. Boys' scores were less stable than girls, and they had a greater tendency to remain in the lowest band

over their first 3 years of school. Girls who were in the top band just before they started school were more likely to remain there at age 8 than boys who started school at that level.

Ethnicity

For the first time in our study, some differences related to ethnicity were evident, with Pakeha/European children scoring higher on average than Maori or Pacific Island children for Mathematics, one of our Literacy measures (reading comprehension), and Logical Problem-Solving. These differences remained after we took account of family income and mothers' qualifications. Maori children who scored in the 2 lowest bands at age 5 were more likely than Pakeha/European children to remain there at age 8. Although Maori children who were in the top 2 bands were more likely than Pakeha/European children to remain there between the ages of 5 and 6, they lost this ground between the ages of 6 and 8.

Mother's Qualifications

Maternal education often has more effect on children's performance than father's education. We found that it becomes increasingly important for children as they grow older. The only competency which was not affected at age 8 was Curiosity. Children who were in the bottom band just before they began school, whose mothers had gone on from school to gain qualifications, were unlikely to still be there at age 8. The children whose mothers did not have such post-school qualifications who started in the bottom band at age 5 were more likely to remain there at age 8; if they started in the top band, however, they

were likely to remain there at age 8 for Perseverance, Individual Responsibility, the Literacy measure of writing, and Fine Motor Skills. Children whose mothers had post-school qualifications who started in the top band at age 5 were more likely to stay there for Mathematics, Literacy (vocabulary), Logical Problem-Solving, and Communication. These two different paths suggest that children from different homes can draw on different family strengths, for example, application, or knowledge.

Family Income

Family income levels, both past and current, are important for children's competency levels at age 8. Indeed, family income levels at age 5 had more of a bearing than current family income levels. However, there is no one-on-one match between income levels and children's performance. The differences show for those at either end of the income spectrum, with children from the highest income homes ($60,000 or more) tending to score more than children from middle- ($30–$60,000) and low-income (below $30,000) homes for Mathematics, Literacy, and Logical Problem-Solving, with no difference between children from low- and middle-income homes. Children from the low-income homes tended to score lower than others for Communication, Individual Responsibility, and Perseverance.

Between the ages of 5 and 8, we found that children from low-income homes were more likely to remain in the bottom band, particularly for Communication, Mathematics, Literacy, and Logical Problem-Solving. However middle- and high-income children who started in the bottom band were more likely

to remain there for Perseverance, Individual Responsibility, Literacy (writing), and Social Skills with Adults. Those children from low-income homes who started in the top band were less likely than middle- and high-income children to remain in the top band at age 8.

These different patterns of progress over the first 3 years of school point to the importance of family resources and gender. What happens at school comes more easily, drawing on knowledge already in the family, for those from well-resourced homes, particularly after age 6, when children from less-resourced homes who were doing very well appear to lose ground. Our next stage of the study, when the children are aged 10, will show us whether this trend continues, or changes, and we hope it will help us better understand what can be done to support children from less-resourced homes make initial ground at school, and keep it.

The Benefits of Good-quality Early Childhood Education in Developing Children's Competencies

Children's experiences at early childhood education (ECE) *do* make a difference—years after they left it for school. Indeed, we find that as the children grow older, we see more associations between children's ECE experience and their competencies. The competencies which have shown a link with children's ECE experience in all 3 stages of our study to date are:

- ❒ Communication
- ❒ Mathematics
- ❒ Perseverance.

These are also the competencies which had become, with Literacy and Individual Responsibility, the best indicators of children's overall performance at age 8.

The aspects of ECE which appear to benefit children's development are:

- ❒ Starting ECE before the age of 2: This benefit remains after taking account of family income and maternal qualification.
- ❒ More than 3 years ECE experience: Children from the lowest income group seemed to benefit particularly from ECE experience of more than 2 years for Communication, and more than 4 years for Literacy. Low-income children with this length of ECE experience scored the same as high-income children.
- ❒ Attending an ECE centre which serves children from middle- or high-income homes: This benefit remains after taking account of family income. This may have something to do with the sharing between children of the kind of knowledge which aids progress in competencies such as Mathematics and Literacy.
- ❒ Quality factors related to the child's last ECE (near age 5): These were the aspects of quality which we found to be important—
  - Staff are responsive to children.

- Staff model/guide children within the context of centre activities.
- Staff ask children open-ended questions that encourage children to choose their own answer.
- Staff join children in their play.
- Children can select their own activities from a variety of learning areas.
- Children can complete activities.
- The centre is a "print-saturated environment".
- Stories are told.
- There are enough age-appropriate toys/books/equipment to avoid problems of waiting, competing, and fighting for scarce resources.
- Staff model and encourage redirection and positive reinforcement in relation to behaviour, and discipline.

It is good to know that these aspects are part of the ECE national curriculum, *Te Whariki*.

We found no relation between children's competency levels at age 8 and parental views of their child's final ECE, or with different patterns of ECE attendance, such as attending 2 at the same time, or going to more than one in sequence.

Key Factors for Children's Competencies

What other factors—resources and experiences—help children? We turn now to look at a set of "key" factors that we found to make the most difference for children's scores at age 8.

There is a small set of key predictive factors which emerged in our analysis. The table below shows the competencies that are particularly associated with them.

Key Factors That Make a Difference for Children

Factor	*Competency*
Family income	Mathematics, Literacy, Perseverance, Communication
Paternal occupation	Mathematics, Individual Responsibility, Perseverance, Communication
Maternal education	Mathematics, Literacy
School socioeconomic decile	Mathematics, Literacy
English is child's second language	Mathematics, Individual Responsibility
Child enjoys reading	Mathematics, Literacy, Individual Responsibility
Child enjoys writing	Individual Responsibility, Perseverance

All but 2 of these factors are related to children's family characteristics. However, children's enjoyment of reading and their enjoyment of writing stand apart, and in fact are not related to the socioeconomic characteristics of families, such as income, education, and occupation.

Other Factors Which Are Likely To Make a Difference

The key predictive factors identified above are not the only factors which make a difference for children. Some of these factors tend to disappear in analysis, since they are correlated with the key factors. Some are more likely to occur within well-resourced families—hence the ability of socioeconomic factors such as family income, paternal occupation, and maternal education to act as key predictive factors. But they cannot be reduced to socioeconomic factors alone.[3] The factors below were all associated with large differences between children's competency scores, and it is when we look at these other factors[4] that we see possibilities for action at an individual family or classroom level.

[3] An indication of this comes from the minimal correlations or one-on-one matches between activities and family income at age 8. For example, these range from r=-0.01 to r=-0.16 between family income at age 8 and these activities: school attendance, use of public library, copying as the only form of writing practised by the child at home, only homework books read at home, and the amount of television watched.

[4] Other than the ECE ones, which were described above.

Literacy—Reading Comprehension

- The actual practice of reading, experiencing diversity through the range of books available in libraries, and enjoyment through the selection of relevant material—relevant not only in terms of subject matter, but pitched at a level that challenges rather than defeats—are all important. Children who read only assigned homework reading do less well than others. Similarly, limiting writing activity to copying narrows the experience, and limits developing capabilities as habits.
- Mathematical experiences such as—
  - playing board games,
  - telling the time, and
  - using fractions (e.g. halves and quarters)

  may help children's reading comprehension ability by giving them confidence in thinking in terms of structure, through activities which apply knowledge in an enjoyable way. Games challenge children to think and understand. The structures a child needs to recognise in numbers are simpler than those needed for reading, and can thus provide a useful foundation.
- The amount of TV watched by children at ages 5, 6, and 8, and the amount of TV watched by their parents, has a negative impact on children's reading, with larger impacts from earlier TV watching. Few children who watched high amounts of TV at age 5 were watching less at age 8, suggesting that patterns of TV watching can be hard to alter once fixed at an early age.

We cannot tell from this study whether it is the content of TV itself that works against children's development of reading, or the amount of time it absorbs, at the cost of practising other activities which are more helpful to children's competency development.

Mathematics

The factors which appear to make a difference for children's Mathematics scores are similar to those which make the most positive differences for their reading:

- ❒ The amount of TV watching at earlier and current ages, and the amount of TV watched by parents.
- ❒ Enjoyment of reading, use of a public library, previously and currently, reading more than homework books, and doing other writing than copying.
- ❒ Enjoyment of numbers, playing board games, using fractions, telling the time, and adding money.
- ❒ In terms of school, low turnover of fellow students in the class, a low level of perceived work difficulty (meaning that the work is pitched at a level that allows a child to feel confident), and a low level of class cohesiveness (meaning that not every child needs to feel that he or she has to like, or be like, everyone else in the class).

Perseverance

There are fewer factors which show large associations with Perseverance. They include some of those which make a large positive difference for Literacy and Mathematics:

- ❒ Enjoyment of reading, reading more than homework books, using the public library, doing writing other than copying, and playing board games.

The factors which are more particular to making a positive difference for Perseverance levels are:

- ❒ Enjoyment of writing, good school attendance, and a class size of less than 21.

Individual Responsibility

The mixture of factors which make a large difference for Individual Responsibility is small, and has most in common with those which make a difference for Perseverance:

- ❒ Enjoyment of reading, using the public library, doing writing other than copying, and playing board games.
- ❒ Enjoyment of writing, good school attendance.

Communication

The only experiential or activity-based factor to feature strongly and largely in association with Communication was having good school attendance.

Families and Resources

Does the changing nature of our society, and the increased variation in the kinds of families our children live in, affect children? Yes and no.

Income-related Factors

Yes: we have seen that children from low-income homes are disadvantaged compared with other children, and children from high-income homes, more advantaged. Other people have documented the increase in inequality in New Zealand, with growing income gaps between rich and poor, and in access to employment. [5] In our study, we found that many of the middle- and high-income families were stable 2-parent families, with both parents employed, and often having post-school qualifications.

Children from these homes were more likely to be in good health, and be more settled, and when they were unsettled, more likely to cope. They had more access to computers, often had their own desk at home, and could read a daily newspaper, and through it experience a wider world.

By contrast, children from low-income homes have experienced more changes in their families, and more shifts in homes. Though many have good health, this group is more likely to experience chronic health problems and need regular medication. These

[5] E.g., Callister, P. (1998). "Work-rich" and "work-poor" individuals and families: Changes in the distribution of paid work from 1986 to 1996. *Social Policy Journal of New Zealand*. Issue 10, pp. 101–121.

families also pay a higher proportion of their income for their accommodation. This disadvantages children from families in the lowest income bracket who had to spend more than half their income on housing; these children showed lower competency scores. The proportion of income spent on housing when the child was aged 5 had a bigger impact on competency levels than the proportion of income spent on housing when the child was aged 8.

Sole-parent families are much more likely to be in the low-income group simply because they have only one adult available for employment and also for childcare. The education levels of the low income group are generally lower, making it harder to find reasonably paid work. Unskilled workers—the low paid—also find themselves in this group. State benefits play a pivotal role in supporting the low paid, those who did not experience educational success, and families which can supply only one adult worker, usually a woman.

Income Source

Wages or salary were the main source of income for 64 percent of the study families. For 13 percent, the main income source was self-employment, and for 7 percent, income came from both wages and self-employment. State benefits were the main source of income for 16 percent. Twenty percent of these, all recipients of the domestic purposes benefit, supplemented their benefit with income from wages.

Contrary to some stereotypes, children were not disadvantaged by their parents' receipt of state benefits. Their scores were no different from others in the same income brackets. It is the income level which affects children, not the source of income.

Nor were there any adverse effects from maternal employment. When the children were 5, 59 percent of the mothers were in paid employment. By the time the children were 8, 72 percent of the mothers were in paid employment, and most of those who were not would like to find jobs. The largest increase over the intervening 3 years was in full-time employment.

Seventy-eight percent of the lowest income group at age 8 had been sole parents for some or all of the child's previous 3 years, as had 41 percent of those who were in the low-income group, 13 percent of the middle-income group, and 5 percent of the top-income group. Children of sole parents did not score less than others in the same income bracket either, though there were indications that children who lived in sole-parent families which had remained in the lowest income bracket over the 3 years between ages 5 and 8 were scoring less than their peers of 2-parent families in the same income bracket.

Family Structure

Twenty-seven percent of the children's parents had lost or changed partners in the 8 years since their birth. Twenty percent of the children did not live with their biological father, and 4 percent did not live with their biological mother. But most had regular contact with their non-resident parent, unless they were

living in another town, and most were said by the resident parent to get on well with the non-resident parent. These changes in families did not affect children's scores on our competency measures.

Children's Experiences Outside School

Reading

Most children read on their own, but more than half the parents still read regularly to them. What did they read at home? Most children were reported by their parents to be readers of fiction, more than half were reported to be also reading for information purposes, to learn more about things, and to find out how to do things.

Parents' Reports of Children's Home Reading Activities at Age 8

Reading Activity	*N=521*
	%
Reads fiction	92
Reads books brought home from school for homework	88
Uses written instructions	83
Reads nonfiction	79
Uses a dictionary	55
Uses an encyclopedia	55
Reads children's magazines	51
Reads adult magazines/newspaper	45
Reads comics/jokes	31
Reads teenage books	14
Reads teenage magazines	10
Reads adult books	9

We found that children who read only the books given to them for homework scored less than others for most competencies. Children who read fiction had higher scores, as did those who read some non-fiction, but not if non-fiction was all they read. Children who read a newspaper tended to score higher than others.

Only 10 percent of the children did not use a public library. However a third of the children only went occasionally, in contrast to the third who visited the library at least once a fortnight. Children's public library use, both previous, at age 6, and current, generally benefited children, particularly children from low-income homes.

Seventy-six percent of the children were reported by their parents as enjoying reading, 14 percent enjoyed reading sometimes, and 10 percent did not enjoy reading. Children who enjoyed reading, or who did enjoy it sometimes, tended to score higher than those who did not. Parents' own enjoyment of reading was not related to children's competency levels.

Writing

The next table shows children's writing activities at home.

Children's Home Writing Activities at Age 8

Writing Activity	*Age 8 (N=521)* %
Copies printed material	82
Writes letters and cards to family/friends	82
Does word puzzles/crosswords	76
Writes short imaginative stories under 2 pages	60
Writes long imaginative stories over 2 pages	20
Writes on the computer	44
Writes reports (factual writing)	40
Writes a journal/diary	34
Writes poems	33
Copies family members' writing	33
Writes lists	21
Copies school work (e.g., stories)	20
Writes plays	14

We found that all the writing activities bar one were positively associated with children's competency scores. The exception is copying, which was related to lower scores, particularly for Mathematics, Literacy, and Communication.

Children's enjoyment of writing was somewhat lower than their enjoyment of reading. Sixty-four percent were reported by parents to enjoy writing, 17 percent to enjoy it sometimes, and 19 percent not to enjoy writing at all. Enjoyment of writing is positively associated with children's competency scores.

Mathematics Activities

Almost every child used mathematics at home.

Children's Home Mathematics Activities at Age 8

Mathematics Activity	*Age 8 (N=521) %*
Can use the telephone	99
Plays board games	97
Plays card games	95
Adds money correctly	82
Can use a calculator for simple addition/subtraction	80
Can use halves and quarters	77
Can programme video/microwave/radio, etc.	77
Can tell the time	75
Can use a ruler to measure length or height	75
Plays computer games/uses computer for number activities	72
Can use a calculator for simple multiplication/division	43
Can do times tables up to 10	30

All these mathematical activities were positively associated with children's competencies, other than playing games on the computer and being able to programme a video or microwave. The mathematical activities which had the strongest associations with children's competency levels were:

- ❒ adding money correctly,
- ❒ using halves and quarters, and
- ❒ telling the time.

Activities which put knowledge and skills to use in practical contexts are the ones associated with higher scores. These activities also involve several operations. In contrast, while there

were positive associations with being able to do times tables up to 10, the overall advantage was less than half that found for the activities above. The advantage for Mathematics itself was only 6 percentage points, compared with 13 percentage points with telling the time, and 16 percentage points with adding money correctly, and using halves and quarters.

The proportion of children who used halves and quarters was much the same for all income groups. Children from the low-income groups who used halves and quarters were able to match the Mathematics scores of children from the highest income group who did not, and they scored slightly higher than these children for reading comprehension.

Using fractions has a marked and very positive association with children's competency levels. This may be because children need to make a fresh assessment of each situation in which they use halves and quarters, which requires—and develops—analytical thinking.

Children's enjoyment of using numbers and working with patterns was much the same as for writing. Fewer children enjoyed measuring things—45 percent; 15 percent did sometimes, and 32 percent did not enjoy measuring. Children's enjoyment of mathematics activities had some positive associations with their competency scores, particularly for enjoyment of numbers and measuring, though fewer than we found in relation to their enjoyment of reading or writing.

Other Activities

Both parents and children agreed that the 3 things age 8 children were most likely to be doing after school were watching television, engaging in physical play such as riding their bikes, or playing with other children. However, parents were much more likely to report their children using the computer or engaging in activities such as reading, art, and handicrafts, than were the children themselves. A higher proportion of children than parents singled out spending time doing things about the house or in the company of adults as something they did most often when not at school—e.g., eating, sleeping, shopping, housework, and homework. Children generally saw themselves participating in social activities more frequently than did their parents.

Group Activities

Most children had joined a club or were taking part in some form of group activity (73 percent). Fifty-five percent of the study children were members of sports-related clubs or groups, and 22 percent belonged to children's service clubs such as Brownies, Cubs, or Keas. Ten percent were taking part in performing arts groups, 8 percent in church groups, and 3 percent in ethnic or cultural groups. A few children had special interests in conservation or as collectors.

Eighty-one percent of boys belonged to a club compared with 64 percent of girls. This reflects the high membership of sports clubs amongst boys: 72 percent, double that for girls. Girls were more likely to belong to arts groups (17 percent compared with

3 percent), and to service clubs (27 percent compared with 17 percent for boys).

We found that simply belonging to a club or organisation had no associations with children's competencies. Children who went to arts groups or service clubs tended to have higher scores, but this may simply reflect the fact that more girls attended these groups.

Around 60 percent of main caregiving parents and their partners belonged to some sort of organisation outside the home. Fathers were more likely to be members of sports organisations than mothers, and somewhat more likely to be members of professional or work-related bodies. Twice as many mothers, 24 percent, belonged to voluntary or service organisations, compared with 12 percent of fathers. There were no gender differences regarding membership of social, church, cultural, arts. or other special interest groups. We found no clear patterns of association between parental membership of organisations, and children's competencies.

Out-of-school Lessons

Forty-nine percent of the children attended lessons or coaching outside school. Girls were more likely to go to lessons than boys (58 percent compared with 41 percent), and much more likely to go to arts lessons (40 percent compared with 16 percent).

Performing arts (27 percent) and sport (26 percent) were the main lessons children had outside school. Only 4 percent attended lessons or coaching in school-related subjects. Most of these

children were rated by their teachers as below average or average overall. Three percent attended classes related to a particular culture or ethnic group, and a small number had tuition in the fine arts.

Children taking arts or sports lessons had slightly higher scores than others. We found no difference between the scores of children taking lessons in school-related subjects and their peers, though the children taking outside lessons tended to rate slightly lower for Perseverance.

Music

Forty percent of the study children were reported by their parents to play a musical instrument or take part in a musical group. Most played a specific instrument (32 percent). Eight percent had joined a choir, and 3 percent played an instrument in an orchestra or cultural group. Fifty percent of girls played a musical instrument or participated in a musical group, compared with 30 percent of boys. Children from the lowest income group were least likely to play a musical instrument (18 percent, compared with 30 percent from low- and middle-income families, and 41 percent from high-income families).

Children who played musical instruments or sang in choirs tended to have higher scores than others. Those who benefited most were in the middle- or high-income groups, or those whose mothers did not have post-school qualifications.

Television Watching

The average time spent watching television at age 5 was 2.65 hours a day, and at age 6 it had dropped to 1.26 hours a day. At 8 years the average viewing time had crept up again to around 1.88 hours a day. Children's favourite television programmes were cartoons. A fifth watched adult sit-coms, and 14 percent, adult soap operas.

Children who, on average, watched less than an hour's television a day scored higher than others for Mathematics and Literacy. We found no patterns relating children's favourite type of programme to their competencies.

Earlier television-watching habits also had an impact over time. Children who had watched television for more than 3 hours a day at age 5 had lower scores for Mathematics and Literacy.

Parental television watching also showed a similar pattern, with children from parents who watched less than an hour a day on average scoring higher for Mathematics and Literacy (reading). This advantage was particularly marked for children from low-income families.

Computers

Seventy-one percent of the study families had a computer at age 8 compared with 57 percent at age 6. Children used computers mainly to play games. A third also did word processing, a quarter used graphics, and 13 percent used CD ROMS for information or projects. Only one percent mentioned use of the Internet or e-mail.

Computer ownership showed positive associations with children's competencies. The particular uses of the computer which appeared to benefit children at age 8 were word processing, using graphics packages, and accessing information through CD ROMS.

The Children at School

The Children

Most of the age 8 children were still at their first school. Most changes of school were because the family had shifted house. They were good attenders of school, with only 1 percent described as having poor attendance records.

Their median class size was 28, with class sizes ranging from 13 to 40. Many children were taught in composite classes, most combining Year 3 and Year 4 students. They could expect to be with the same classmates for the full school year. Turnover of students was higher in schools serving low-income communities.

Seventy-one percent of the children were enthusiastic about going to school, 13 percent had mixed feelings, 9 percent were matter of fact about it, and only 3 percent were unhappy or bored.

When we asked the children to rate their classrooms, most were positive about them. Around half found their schoolwork demanding. Most children experienced some competition with

others. A third of the children noted some fighting in their classrooms. Most children had some friends in their classroom, or felt that their classroom was a friendly environment.

Parents and Teachers

Sixty-five percent of the parents were satisfied with their child's progress at school, 28 percent were satisfied with some aspects, but not others, and 7 percent were not satisfied.

Parents of boys were less satisfied with their progress, and more likely to work with the teacher to resolve academic problems. Boys were less likely to be reported as enthusiastic about school. Teachers also rated girls more highly on their overall progress. Girls were more likely to be seen by teachers as having strengths in literacy, music and art, and boys in mathematics, science, technology, and physical education.

There was considerable consistency in overall assessments by teachers of children's progress between ages 6 and 8, particularly for children categorised as making very good/excellent progress at age 6, and for children seen as strong at reading at age 6. Academic progress was associated by teachers with maturity and independence, and trying hard.

Only one percent of the 8-year-olds in our study did not get any homework. Almost all their parents gave them some help with homework, particularly supervising, and help with spelling, reading, and mathematics.

All but 2 percent of parents felt comfortable in talking to their child's teacher about their child. It was common for parents to work with teachers on problems encountered by their child, mostly to do with the child's happiness and social wellbeing, or their progress at school. There was less contact between parents and teachers at age 8 than at age 6. Parents whose children were doing well were more likely to have regular contact with the teacher. Most parents also had some involvement in their child's school, particularly voluntary work in classrooms (42 percent), and other voluntary work for the school (29 percent).

Children's enjoyment of school, parents' satisfaction with school, and their contact with their child's teacher showed different patterns that were related to the individual children and parental education and income, but only in a few instances to the type of school attended.

Effect of School Environment on Children

Did differences in the current school and class affect children's competency levels? We found that the socioeconomic composition of a school, as measured by the Ministry of Education's decile ranking, does make an additional contribution to children's Literacy, Mathematics, and Logical Problem-Solving competency levels, over and above their individual family income. Taking age-5 scores into account continued to show the school decile attended by children having an impact of its own for Literacy and Logical Problem-Solving. This impact results in lower scores for children attending decile 1–2 schools.

Our data on children's experiences of their classrooms underscore the negative impacts for children of friction between children, competitiveness, work that is pitched at too high a level for the children (and is found to be too difficult), and lack of satisfaction or enjoyment from the work of learning. However, children don't need to be friends with everyone in the class, as long as they have some friends.

We found that children's scores in classrooms which had more than 1 in 10 children whose English was a second language tended to be slightly lower for Mathematics, Communication, and Individual Responsibility, but not for Literacy. We also found a tendency for children's scores to be somewhat higher overall if they were in stable classes, with little turnover of students.

We found no impacts related to children being in composite classes with more than one level, being in open-plan classrooms, attending more than one school by the age of 8, or attending different types of school (state, integrated, or private). We found a tendency for children in classes over 30 to score lower than others on Perseverance and Individual Responsibility.

Regular school attendance was good for children, and particularly beneficial for children whose mothers had little formal education. Parental supervision of homework was particularly beneficial for children from low-income homes.

Voluntary parental involvement with the school also made a positive difference to children's performance.

Parents' views of their children's school progress were much better matched to the children's competency levels than they had been at age 6. Teachers' overall assessments continued to provide a sound guide to children's progress in specific competencies.

Helping Children Make Progress

Early Childhood Education

What have we learnt so far from our study of children as they move from early childhood education through their first 3 years of school that could make a difference for children's progress?

- ❒ The benefits of early childhood education continue at least 3 years after children have left their final early childhood education centre. The gains for children come from:
  - The nature of the progamme at early childhood education centres, which emphasises activity-based learning, and interaction with other children and other adults outside the immediate family.
  - The quality of the teaching.
  - The resources available at the centre, whether they are activities and objects, or the knowledge and experiences that the other children at the centre bring with them.

These aspects of early childhood education provide good indicators on which to base any policy changes to early childhood education.

Family Resources

- ❒ Family resources *do* matter for children. A family's preschool income levels and other income-related resources are just as important, if not more so, than current income levels, particularly for children whose families have low incomes.
- ❒ Some aspects of families matter less for children than the attention sometimes paid to them. It does not matter much that children have one parent, or two, or that the family income comes from benefits, wages, or self-employment. Children show more resilience than we sometimes credit them with during changes to their family.

If we want to make a difference for children, then the key policy questions in terms of family resources revolve around supporting children through such things as providing affordable housing and ensuring adequate family incomes at the lower end.

Children's Activities

- ❒ A little television does no harm—but more than a few hours a day will erode children's progress. Parents' television watching habits can also have a bearing on their children.
- ❒ Preferring copying to writing original work, restricting reading to only what is set from school: these are signs for parents and children that it is time to move on.
- ❒ There are many ways to make progress in reading, writing, and mathematics, that are enjoyable, simple, and part of the everyday activities of families. Doing them often lays down

knowledge, confidence, and also useful habits of keeping going even when the going is hard, and organising oneself.

- ❒ Public libraries remain important to children.

At School

- ❒ Isolating children from low-income families does not help their development. Balanced social mixes matter as much in schools as they do in early childhood centres.
- ❒ Teachers' overall assessments of children are sound guides to their performance. By age 8, parents also have a more accurate sense of their child's performance than they had at age 5.
- ❒ Girls were performing better than boys in many of the competencies, and were making better school progress. This may reflect their interests and activities outside school, but also their better work habits.
- ❒ Other social factors also have a bearing on children's progress. Children whose parents did well at school, and whose incomes were not low, either start school well, and keep making progress consistently, or stand a better chance of improving their performance if they start school at a low level. They may be better "matched" to school, and able to take more advantage of it than others.
- ❒ Maori children who started well at age 5 continued to do well at age 6, better than Pakeha/European children, but then lost ground between ages 6 and 8. We need to know more about why this may be happening, and work to prevent it.

Other publications from the Competent Children Project

Five Years Old and Competent — *Cathy Wylie*

What makes a competent 5-year-old? This book gives a summary of the research report – *Competent Children at 5*. It highlights the impact of the children's family resources and early childhood experiences on the development of their cognitive, social, communicative, and problem-solving competencies. Thought-provoking and very readable.

NZCER 1996 Price: $9.00

Competent Children at 5
Families and Early Education

Cathy Wylie, Jean Thompson, and Anne Kerslake Hendricks

The aim of this project was to discover what impact children's family resources and early childhood education experiences have on the development of their cognitive, social, communicative, and problem-solving competencies. This report is from the first phase of the longitudinal project.

NZCER 1996 Price: $29.70

Thinking Children — *Anne Meade with Pam Cubey*

How can we help our children to develop their thinking? This book from Anne Meade focuses on young children's thinking as they explore mathematical and science related schemas with the support of understanding adults. The children in the study were aged between four and a half and five years old.

With increasing interest in schema theory and practice throughout New Zealand and England, this book adds to the understanding and presents this learning theory in a manageable way for practitioners and parents.

NZCER and VUW 1995 Price: $27.00

For those interested in the methodology and detailed findings a researchers' edition is also available: "Competent Children and Their Teachers".

NZCER 1995 Price: $13.50

Six Years Old and Competent

Cathy Wylie and Anne Else

A summary of the main report *Competent Children at 6: Families, Early Education and Schools*. This part of the Competent Children study revisits the original group of 300 children, aged 6, after they have been at school for a year. How have the children's competencies changed? This book describes and analyses variations and changes in children's cognitive, social, communicative, and problem-solving competencies. It also examines the impact that children's early childhood education experiences, family resources, home activities, and school resources have on these competencies.

NZCER 1998 Price: $14.85

Competent Children at 6: Families, Early Education, and Schools

Cathy Wylie and Jean Thompson

The research findings of the second stage of the Competent Children project, are examined in this major research report. Among the findings are • identification of main gains in competencies between age 5 and 6 • competency level predictors • continuing effects of early childhood education • effect of class size • impact of home experiences, resources and activities.

NZCER 1998 Price: $36.00

Available from:

NZCER Distribution Services, PO Box 3237
Wellington, New Zealand. Fax 04 384 7933

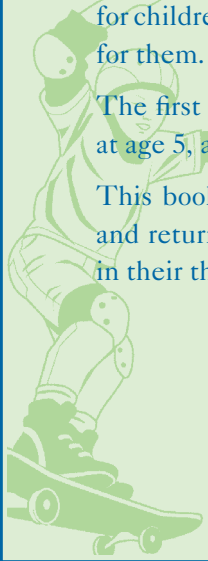
The Competent Children project, funded by the Ministry of Education, follows a group of about 500 New Zealand children from around the age of 5, when they are still in early childhood education, through until they leave school.

The main aim is 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 as children have other experiences.

The project also aims to chart the differences in home and educational resources and experiences that exist for children, and the impact these differences can have for them.

The first stage of the research looked at the children at age 5, and the second stage at age 6.

This book describes the third stage of the research, and returns to the children at age 8, when they were in their third year at school.



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