



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga

GROWING INDEPENDENCE

A SUMMARY OF KEY FINDINGS FROM
THE COMPETENT LEARNERS @ 14 PROJECT



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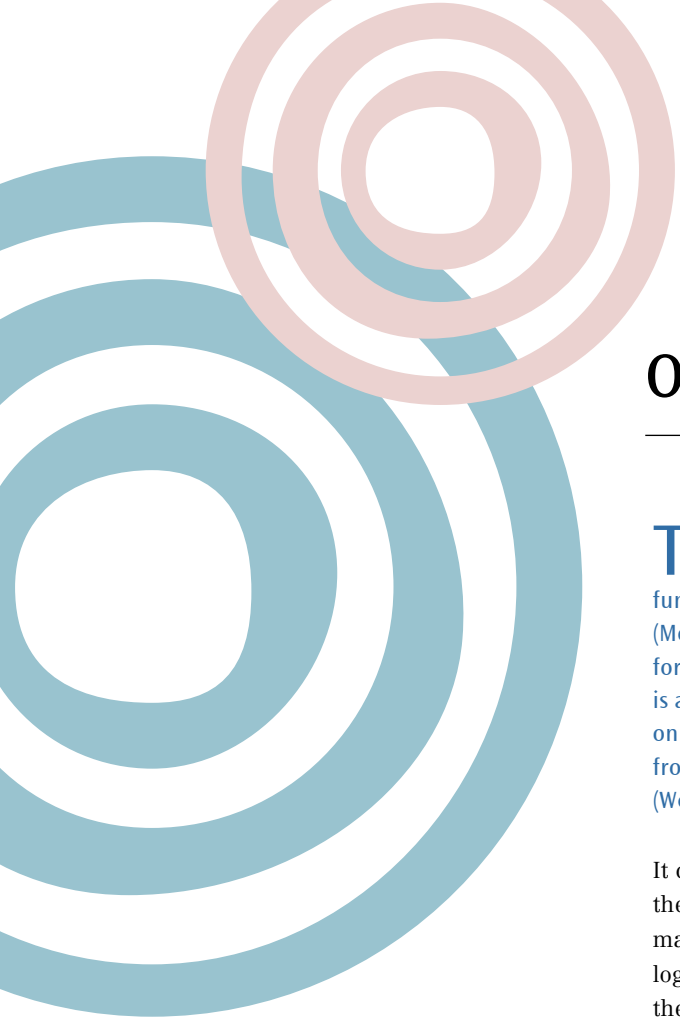
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The opinions expressed in this report are those of the researchers involved with the Competent Learners @ 14 project and do not necessarily reflect those of the Ministry of Education.

Competent Learners @14 is the sixth phase in the Competent Children, Competent Learners longitudinal study.

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Overview

The Competent Children, Competent Learners project is funded by the Ministry of Education (MoE) and the New Zealand Council for Educational Research (NZCER). It is a longitudinal study which focuses on a group of about 500 students from the greater Wellington region (Wellington, Hutt, Kapiti, Wairarapa).

It charts the development of the students' competence in mathematics, literacy, and logical problem-solving and their competence in social and communication skills. It also explores the students' home and education experiences to find out which may account for differences in patterns of development and performance in these competencies.

The project started in 1993, when the students were nearly five years old and in early childhood education. At that time, there were some overseas studies showing that early childhood education appeared to benefit children, but no comprehensive New Zealand research. The studies paid attention to aspects of the quality of the provision, such as adult:child ratios, group size and staff qualifications. Since then, there has been more research into the contribution of early childhood education, providing an increasingly robust understanding of the relationship between early childhood education experience and children's development. The Competent Children, Competent Learners project makes a useful contribution to this field of research because it is one of the

few longitudinal studies to have followed its participants into adolescence.

Six phases of the study have now been completed – the first when the students were near age 5, the next when they were at age 6, and at two yearly intervals since then (ages 8, 10, 12 and 14). In 2005, data were collected on the students at 16 years.

This summary presents the key findings from the five research reports completed for age 14. This phase looked at the effects on performance of early childhood education, transition to secondary school, and the young people's experiences at age 14 in five areas (leisure, relationships with peers, interactions with parents, their values, and their engagement in school and learning).

The research was conducted by Cathy Wylie (Chief Researcher), Edith Hodgen, Hilary Ferral, Jean Thompson, Rachel Dingle, and Rose Hipkins.

For more detailed information, refer to the individual reports on the age-14 phase:

- *Competencies at Age 14 and Competency Development for the Competent Children, Competent Learners Study Sample*
- *Contributions of Early Childhood Education to Age-14 Performance*
- *Completely Different or a Bigger Version? Experiences and Effects of the Transition to Secondary School*



- *Growing Independence: Competent Learners @14*
- *Growing Independence: Technical Report.*

These and earlier reports are available on the NZCER and the Ministry of Education's websites, www.nzcer.org.nz, www.minedu.govt.nz, and www.educationcounts.edcentre.govt.nz

KEY FINDINGS

- It is important to establish solid early foundations of learning before children start school, especially in the use of language, symbols and patterns. Children with high performance early on are likely to perform well later on. Early low performers are likely to have low performance later on.
- However, none of the competency levels, engagement or behaviour of the 14-year-olds was completely predictable. Individual children's performance levels can and do change over time and current performance levels at any one time should not be regarded as fixed.
- A strong focus on reading and mathematics in the early years of primary school is particularly important for those who may have had fewer experiences involving the use of language, symbols and patterns in their pre-school years. However, this should not be at the expense of other enriching activities.
- Social characteristics (e.g. maternal qualifications or family income) account for some of the difference in young people's scores but do not account for most of it.
- Some aspects of early childhood education still have associations with performance at age 14, nine years later. In particular, the quality of staff-child interactions, having an environment that has many books and printed materials, length of early childhood education and starting age, and the make-up of the centre in terms of the socio-economic backgrounds of the children who attend are all important.
- There is no evidence that transition to secondary school negatively affects students' levels of performance. Students' earlier performance and engagement in school carry more weight in performance levels at age 14 than the transition to secondary school itself. The exception is that taking a longer time to settle into secondary school has a negative association with confidence.
- Performance levels do change at age 14, with changes just as likely to be up as down.
- Students from low income families are more at risk of lower performance than other groups, and improving the achievement of these students is a key challenge for educators.
- Enjoyment of reading is a key indicator for engagement in learning and for competency levels at age 14.
- At age 14, most of the young people in the sample have positive and valued relationships with family and friends, are engaged with school and learning, and have out-of-school activities they enjoy.
- Students at 14 who are engaged in school and learning are likely to be in positive learning environments where there is good feedback from teachers, relevant teaching, challenging work and a focus on learning at the students' pace.
- There are connections over time between what is happening at school and what is happening at home. For example, those who show signs of disengagement with school are also likely to experience family pressure, engage in risky behaviour, and not have interests that engage them outside of school. ☹

How the research was done

THE COMPETENCIES

For age 14, the research focused on 11 competencies, organised into two groups. One group consists of seven competencies relating to the students' approaches to learning and their social and communication skills (referred to as 'attitudinal competencies' and the other group consists of four competencies relating to subject areas or 'thinking' skills (referred to as 'cognitive competencies').

The seven attitudinal competencies are curiosity, perseverance, self-management, self-efficacy (belief in one's ability), social skills with peers, social skills with adults, and communication.

The four cognitive competencies are: reading comprehension, writing, mathematics and logical problem-solving.

Both groups of competencies were also compared with the four social characteristics of gender, mother's qualification level, family income and ethnicity to find out what associations, if any, there were between these social characteristics and the students' patterns and levels of performance.

HOW THE INFORMATION WAS GAINED

Reading comprehension and mathematics have been measured the same way from age 8, using age-related PAT¹ standardised tests for reading and abbreviated versions of the age-related standardised PAT mathematics test.

The writing task at age 14 asked for 20 to 25 lines about something

interesting the young person had seen, done, or read. They were asked to explain clearly what they were writing about and what they liked most about it, including their reasons. The writing was marked for surface features (spelling, punctuation, grammar and syntax) and deep features (vocabulary, sentence construction, paragraph construction and sequence, and clarity of thought).

Logical problem-solving was measured by using the Ravens standard progressive matrices, a standardised non-verbal test specifically designed to measure this skill.

The students' core subject teachers (English, mathematics and science) rated the students' attitudinal competencies.

Students', parents' and teachers' views were sought on the transition to secondary school, and on home and school experiences.

For more information on the methods of analysis, refer to the individual reports.

RESULTS

The following sections outline the key findings from across the four reports. They include the lasting influence of attending a quality early childhood centre, the effects of transition to secondary school, factors influencing engagement in school and learning, including out-of-school factors, patterns of performance, and the relationship of social characteristics with performance. 🍷



¹ Progressive Achievement Tests

The continuing effects of early childhood education

Earlier studies in the **Competent Children, Competent Learners** project found that students who experience quality early childhood education benefit in both the cognitive and the attitudinal competencies over the short and longer term.

In the age-14 study, the researchers found that aspects of students' early childhood education still had associations with performance nine years later.

The aspects that show a lasting contribution to students' competencies are: high quality staff interactions with children; an environment providing lots of books and written material and where children can select from a variety of learning activities; the child's starting age and the total length of early childhood education; and the make-up of the centre in terms of the socio-economic backgrounds of the children who attend.

Generally, these associations applied irrespective of maternal qualification or family income; that is, there were benefits for all children, regardless of their background. However, children from low-income homes benefited more than others from high quality staff guidance through early childhood education centre activities.

QUALITY

In terms of the quality of early childhood centres, the aspects with the most enduring contribution to student performance at age 14 were:

- staff responsiveness to children
- staff guiding children in activities
- staff asking open-ended questions
- staff joining children in their play
- children being able to select activities from a variety of learning areas
- the provision of a print-saturated environment.

Students who had experienced high quality in these aspects had higher scores for competencies at age 14 than others, particularly for the cognitive competencies.

STARTING AGE AND LENGTH OF EARLY CHILDHOOD EDUCATION

Children who started early childhood education between the ages of 1 and 2 had higher scores in mathematics, writing and reading at age 14 than those starting after age 3.

Those who had less than 24 months' early childhood education had lower scores than others for attitudinal competencies (e.g. communication, perseverance, self-management).

SOCIO-ECONOMIC COMPOSITION OF THE CENTRE

The researchers have consistently found that children of all backgrounds who attended an early childhood centre that served mainly middle-class families had higher average scores for the cognitive competencies. They continued to find these associations at age 14.

Continued over page...

RATING EARLY CHILDHOOD EDUCATION QUALITY

Staff responsiveness

Centres with a high rating on this dimension had staff who responded quickly and directly to children, adapting their responses to individual children. They provided support, focused attention, physical proximity, and verbal encouragement as appropriate, and were alert to signs of stress in children's behaviour, and guided children in expressing their emotions. A centre with the lowest possible rating would be one where staff ignored children's requests, and were oblivious to their needs.

Staff guiding children in activities

In centres with a high rating on this dimension, staff moved among the children to encourage involvement with materials and activities, and interacted with children by asking questions and offering suggestions. They offered active guidance and encouragement in activities that

were appropriate for individual children. A centre with a very low score for this aspect of quality would be one that left children to choose all their own activities.

Staff asking children open-ended questions

Centres with a high rating on this dimension had staff who often asked children open-ended questions, giving them opportunities to come up with a range of different answers, to encourage thinking and creativity. Centres where no open-ended questions were heard would receive a low rating.

Staff joining children in their play

At centres with a high rating on this dimension, staff frequently joined in children's activities, offered materials or information or encouragement to facilitate play and learning around a particular theme. A centre whose staff only monitored children's play but did not join in it at all would receive a low rating.

Providing a print-saturated environment

High-rating centres on this aspect of quality were very print-focused. They were ones that encouraged print awareness in children's activities, had a lot of printed material visible around the centre, at children's eye-level or just above, and offered children a range of readily accessible books. A centre with very few or no books, posters, or other forms of writing would receive a low rating.

Children selecting activities from a variety of learning areas

High rating centres allowed children to self-select activities that supported learning from a wide range, with some new or different activities introduced over time. A low rating centre would provide a very limited range of activities for children to choose from at any one time (less than three at most times).



ASPECTS SHOWING NO ASSOCIATIONS AT AGE 14

There were also some aspects of early childhood education that showed no association with performance at age 14.

For example, attending different kinds of early childhood education services at the same time (such as combining family day care with attendance at an early childhood centre) did not appear to affect attitudinal or cognitive competencies.

Nor were there any associations with performance at age 14 between the type of early childhood education, parents' perceptions of the early childhood education service, or parents' involvement with their child's early childhood education centre.

THE IMPLICATIONS

These findings deepen our understanding of what is important to focus on in early childhood education practice and policy.

For example, the findings suggest that professional development and initial teacher education should focus on raising the quality of guidance early childhood education staff provide for the children they work with, as well as their participation in the children's play and the use of language (including the kinds of questions children are asked and therefore the kinds of thinking that children are called upon to practice and develop).

Ensuring high quality staff interactions with children in early childhood education will give children greater opportunity to develop deep understandings and habits that will endure. ☉





The impact of transition to secondary school

The transition to secondary school involved a change of school for most of the students (88%), with the most common change that from an intermediate or full primary to a secondary school.

Most students (66%) were looking forward to secondary school, 15% were definitely not looking forward to it, and the rest fluctuated or were unsure.

SETTLING IN

Friendships, teachers, and family were important factors in how quickly students settled in to secondary school.

Most of the students settled in within two terms. Prior feelings about going on to secondary school were not related to the time it took to settle; those who had been apprehensive took no more time to settle than those who had looked forward to secondary school, and high performers were no more, or less, likely to settle quickly than others.

Those who did take two terms or more to settle had lower scores for the attitudinal competencies after taking into account prior performance and social characteristics.

On the whole, social characteristics (for example, maternal qualifications and family income) were unrelated to how long it took to settle.

Students who did not change schools were more likely to settle in straight away, but not all did so. This suggests that transition to

secondary level is not just an issue of getting used to another school.

SOCIAL CHARACTERISTICS

Students from low income families or whose mothers did not hold formal educational qualifications were more likely to be bored, skip classes, get sick of trying, not like their teachers, and want to leave school as soon as they could.

Students attending low decile schools were less engaged and less confident in their schools than they had been at age 12.

There were some signs that Māori and Pacific students were running up against the school rules more than Pākehā/European or Asian students. They were less likely to think discipline rules were fair and to feel they were treated as individuals, and they were more likely to find it hard to get used to new teachers. However, these findings need to be treated with caution because of the small number of Māori and Pacific students in the study.

SCHOOL CHOICE

Nearly three-quarters of the students said their school was their first choice school. Those who were less likely to be in their school of first choice were from low income families.

Just under three-quarters of students would choose the same school again, and half of those who were not at their first choice of school felt more positive about

it once they had experienced it. However, this was less true for students in decile 1 and 2 schools and students from low income families.

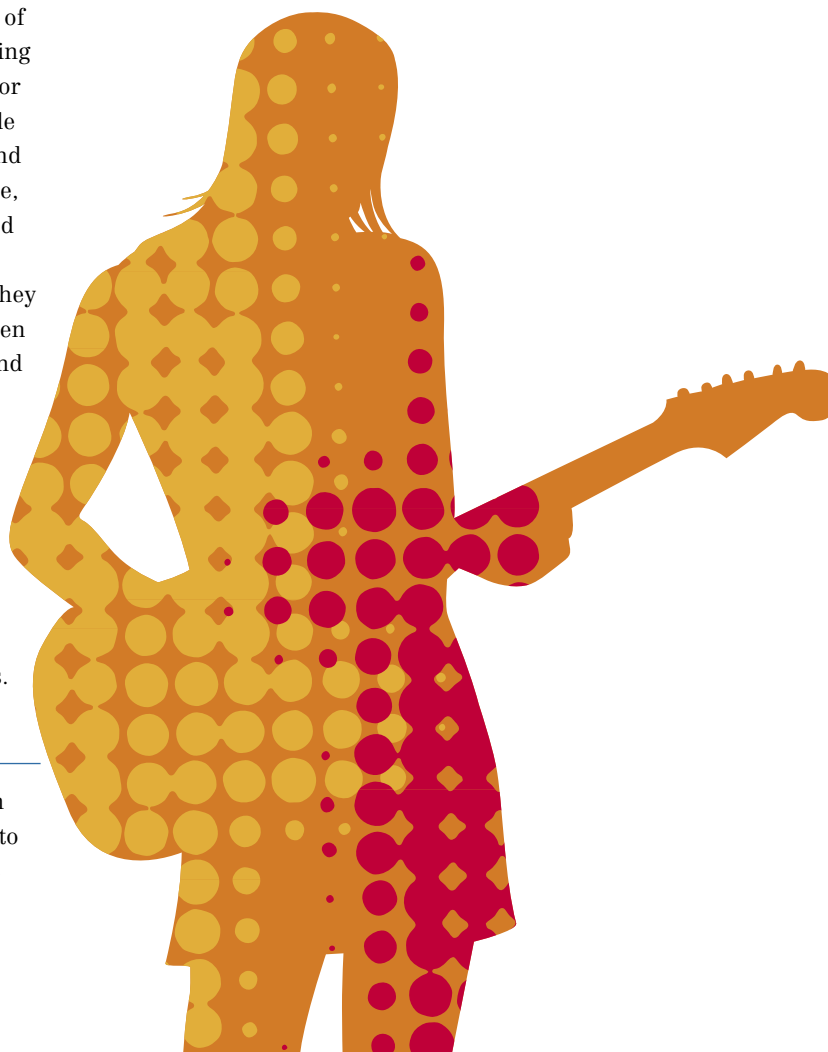
Students who were not at their first choice of school had lower levels of school engagement, school confidence, of being absorbed in learning and lower scores on each of the competencies. They also showed lower levels of family and friend support and higher levels of risk behaviour (for example, falling behind with school work, lying for someone else, getting into trouble at school, or drinking alcohol) and adverse experiences (for example, health problem, accident, hassled about culture, hassled about sexuality, or family break-up). They were also more likely to have been unhappy at school since age 8 and had lower competency levels at age 12 than other participating students.

However, being at their school of first choice did not account for differences in student engagement and overall achievement levels: it was outweighed by other factors.

FRIENDSHIPS

Students experienced changes in their friends over the transition to secondary school – some friends were lost but also new friends were gained.

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Friendships and independence from parents were becoming more important. Friendships were more likely to include going out to entertainment, or going out with no fixed agenda. Support or trust was an important dimension for many friendships. All but a few students had some close friends, and close friends were likely to include males and females. Nearly all had good friends at school but most also had friends who did not go to their school.

Girls' friendships changed more than boys' friendships, particularly in making new friends.

PERFORMANCE

There was no evidence that transition to secondary school negatively affected student levels of performance.

In fact, there was slightly greater stability of performance over the two years between age 12 and age 14 than there was over the two-year periods between earlier phases of the study when the students were in primary school.

Levels of performance did change – they were not fixed by the age 12 level – but any changes in performance were just as likely to be up as down over this time period.

Students' prior performance and engagement in school carried more weight in early secondary performance and engagement than the transition itself. The only exception was that taking a longer time to settle had a negative association with confidence.

THE IMPLICATIONS

Most students appeared to settle into secondary school well. However, there were signs of a growing mismatch and discontent with school among students from low income families and, overlapping that to some extent, among those attending low decile schools.

This suggests that concerns over transition need to focus more on these groups, and on the nature of learning and teaching in low decile secondary schools.

Given the importance of prior engagement and performance levels, there is a need to ensure that these are solid before students come to secondary school.

But it is important not to prejudge a student's likely progress. Dips in learning can occur not just at transition to secondary school but at earlier periods of schooling. Variability in an individual's progress might also be because of transition points in personal lives rather than changes in school structure. ☺

Out-of-school influences

In *Growing Independence*, the fourth report on the sample at age 14, the researchers looked at the students' use of leisure time, their relationships with peers, relationships with parents, family resources, students' values and the events in their lives, and their engagement in school and learning.

LEISURE TIME

There were four clusters of students based on how they spent their time – sports players, electronic games/ no strong interest, all-rounders (reading/arts/sports), and creative interests.

STUDENT CLUSTERS ACCORDING TO THEIR LEISURE-TIME PURSUITS

Sports players

These students are characterised as more likely to regularly play sports, exercise, and less likely to take part in performing arts. Thirty-four percent of the sample was in this cluster. Males were almost twice as likely as females to be in this cluster (43% compared with 23%). Pacific young people were less likely to be in this cluster (13%). This cluster had the second lowest proportion of young people who enjoyed reading (52%).

Electronic-games/ No strong interests

This group showed similar level of electronic-game playing as the 'sports players', but did not engage in other interests regularly. Twenty-four percent of the sample was in this cluster. There was some relationship with family income: thirty-three percent of the low-income group were in this cluster, decreasing to 15 percent of the high and very high income groups. Māori and Pacific young people were more likely to be in this cluster (36%

compared with 22% of Pākehā/ European and Asian). This cluster had the lowest proportion of students who enjoyed reading (34%).

All-rounders

These students participated in regular sport and exercise, but also liked to read and take part in the performing arts on a regular basis. Twenty-eight percent of the sample was in this cluster. Females were almost twice as likely as males to be in this group (36% compared with 21%). The very high-income group was also more likely to be in this cluster (41%). Pākehā/European and Asian young people were also more likely to be in this cluster (15% compared with 5% of Māori and Pacific). Sixty-seven percent of this cluster enjoyed reading.

Creative interests

Students in this cluster also participated in the performing arts, and had regular involvement in making things. They did not take part in sport and exercise on a regular basis, however. Thirteen percent of the students in the study were in this cluster, and 70 percent of the cluster enjoyed reading.

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These differences in the use of leisure time did not, on their own, account for much of the variation in age-14 competency scores, but those in the all-rounders and creative interests groups had higher scores for mathematics, reading, and logical problem-solving. They were also more likely to have a higher composite score for the attitudinal competencies.

The all-rounders group was more likely to have higher average attitudinal scores at each of the earlier ages. This group and the creative interests group were more likely to have higher logical problem-solving scores at earlier ages.

Television

The findings from the earlier stages of the Competent Children, Competent Learners project showed that those who watched a lot of television had lower scores on average than others. The researchers found the same pattern at age 14, for both the cognitive and the attitudinal competencies.

Heavy watchers of television at age 14 had consistently lower average scores for reading from age 5, and lower average scores for mathematics from age 8. They also had lower average scores from age 5 on the composite score for the attitudinal competencies. However, their logical problem-solving scores were similar to the other groups who were watching less television.

Young people who watched a lot of television were more likely to be male, from low income families or those whose mothers have low education levels.

Those who watched a lot of television were



more likely to be disengaged from learning, have fewer solid friendships, have friends who took risks, and be from less supportive or communicative families. This suggests that television watching may be part of a set of experiences that, taken together, can have negative effects for young people.

Earlier analyses from the study suggested that watching a lot of television may affect the development of reading skills in childhood. It takes time that could be spent on more challenging activities. Also, because of television's largely visual nature and the way it uses language, it does not stretch children as much as reading or activities that involve two-way communication and the use of symbols and patterns do.

Computer use

Those who had used a computer for about 3.5 to 5 hours a week at age 12 tended to have higher scores at age 14 than those who had used it for less time, but the differences were only statistically significant for mathematics. There was no relationship between time currently spent with computers and age-14 competency levels.

Reading

Although more than half the sample still enjoyed reading at age 14, there was also a decline in enjoyment since age 12.

Enjoyment of reading was a key indicator for competency levels and engagement in learning.

Students who enjoyed reading had higher scores on the cognitive and social/attitudinal competencies than both those students who enjoyed it sometimes and those who did not enjoy it at all. Those who sometimes enjoyed reading, in

turn, had higher scores than those who did not enjoy it at all.

On average, those who enjoyed reading at 14 had consistently higher scores for mathematics, reading, and the composite score for the attitudinal competencies from age 5 than those who did not enjoy reading. And, on average, they had consistently higher scores from age 8 for all the competencies (mathematics, reading, logical problem-solving and the attitudinal composite) than those who did not enjoy reading at age 14.

Thus, a lack of interest in reading at 14 appears to have early precursors – before the students had started to read, in fact. The students who lacked interest in reading at 14 were more likely to have shown lower levels of mastery of skill and knowledge using language and symbols in the earliest phase of the study, and were least likely to have the attitudes that make it easier to make the most of the classroom environment.

Those who enjoyed reading also had higher average scores for engagement in school, positive communication and relations with family, and positive friendships. They showed less risky behaviour, and had higher levels of motivation towards school.

Those who did not enjoy reading were more likely to be in the 'electronic games/no strong interests' cluster; be heavier television watchers over time; have had bullying experiences; and be seen by teachers as having difficult classroom behaviour at age 12. They were also less likely to complete their homework and less likely to be enthusiastic about going to school.

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FAMILY RESOURCES

Improvements in family income over the nine years to age 14 seemed to make little difference to students' competency levels in mathematics and reading.

At age 12, students whose family had moved house five or more times over the course of the study had lower average scores for mathematics, perseverance and social skills with peers, compared with those who had stayed put or moved only once. However, there were no associations at age 14 between the number of house moves and competency scores, even before taking family resources into account. This might suggest that moving house frequently matters more at younger ages.

RELATIONSHIPS WITH PEERS

Students who had friends who showed risky behaviours were also more likely, but not always, to show risky behaviour themselves. They were also more likely, but not to the same extent, to be disengaged in school and learning. Their friendships and their families were less likely to be supportive. They were more likely to express dissatisfaction with their life over the past year.

Bullying was happening less at age 14 than in previous phases of the study. Those who bullied were found to be less engaged in schooling.

RELATIONSHIPS WITH FAMILIES

Parents were sharing fewer activities with their 14-year-olds, and disagreements between parents and the young people occurred almost universally. But while their independence mattered more to the young people than it had two years earlier, they still largely saw their families as supportive and inclusive and, to a lesser extent, as communicating well. Family pressure was not a common experience, and parents largely trusted their children as they started to engage in fewer shared activities.

Feelings about family interaction and relations were linked to ways that young people spent their time. There was more friction and pressure for those who were in the 'computer games/no strong interests' leisure group and those in the 'standing out' values group (see value clusters on page 17). Those who felt positive about their families tended not to have friends who had risky behaviour or to have shown risky behaviour themselves. They were more engaged in learning.

VALUES AND EXPERIENCES

There were three clusters of young people in terms of their values: 'anchored and achieving', 'anchored', and 'standing out'.

The 'standing out' cluster at age 14 had lower scores on average for mathematics, reading, logical problem-solving and on the composite score for attitudinal competency than students in other clusters.



VALUE CLUSTERS

Anchored and achieving

Students in this cluster put particular emphasis on having an interesting job, a good education, influencing others, being creative or taking part in church/spiritual activities. They also put emphasis on doing well at school, being with their family/wh nau/fono, being helpful or kind, and enjoying the things they did. They also wanted a happy family life in the future. Thirty-seven percent of the sample was in this cluster.

Anchored

The students in this cluster were like those in the 'anchored and achieving' cluster in their emphasis on doing well at school, being helpful or kind, and enjoying the things they did. It was somewhat more important to them to do well at school, be with their family/wh nau/fono now, and, as adults, to have a happy family life; and they put less emphasis on having an interesting job or good education. Twenty-two percent of the sample was in this cluster.

Standing out

The students in this cluster put more emphasis on having money to spend now and having lots of money in the future, on having lots of friends (now and in the future), on wearing the right clothes or looking cool, and on having an important job. Having an interesting job, and doing well at school were less important. This cluster was least likely to enjoy reading. Forty-one percent of the sample was in this cluster.

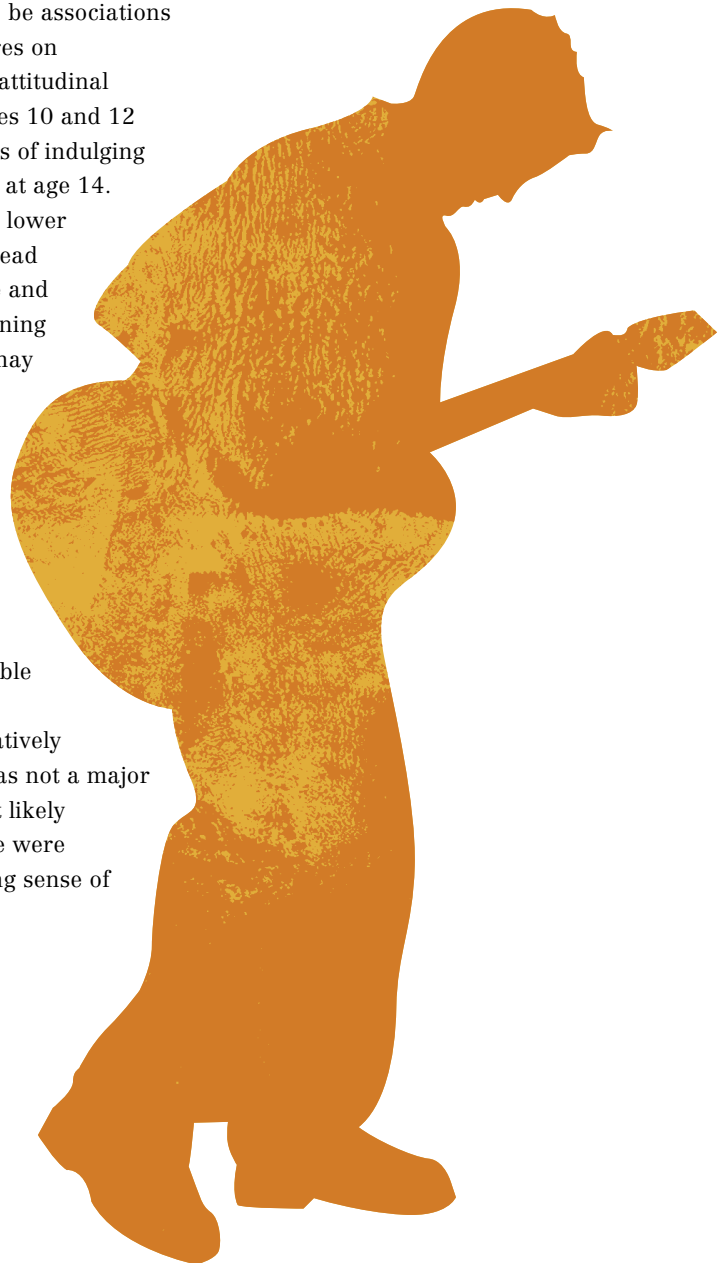
Risky behaviour

Risky behaviour was generally low at 14. It was rare for the 14-year-olds to report they had had sex or been sufficiently drunk to do something that they regretted afterwards.

Risky behaviour was more likely for those who did not enjoy reading, and who had mixed or heavy patterns of television watching over the years; it was also more likely if there had been previous involvement in bullying.

There seemed to be associations between lower scores on both cognitive and attitudinal competencies at ages 10 and 12 with students' levels of indulging in risky behaviours at age 14. Perhaps if previous lower competency levels lead to lower confidence and engagement in learning then this, in turn, may lead to students being disillusioned and consequently experimenting with risky behaviours with or without their friends.

Getting into trouble at school at least sometimes was relatively high, although it was not a major issue and was most likely a sign young people were flexing their growing sense of independence. ☺



Engagement in school and learning

Two-thirds of the students enjoyed learning and showed engagement in school. A fifth wanted to leave school as soon as they could, and there was a marked increase in boredom.

A third did not find school engaging, although disengagement with school was more passive than active. Around a fifth (a marked increase) thought they could get away with doing little work in their compulsory subjects, and a tenth sought to annoy their teachers.

ENGAGEMENT FACTORS

Students who were engaged in school and absorbed in learning were likely to be in positive learning environments – where there was good feedback, relevant teaching, challenging work, a focus on learning at the students' pace, and students were not overtly compared.

Students liked teachers who provided positive learning environments, and they were less inclined to be negative about a subject in such an environment.

Those who were engaged in school were also likely to be supported at home, and to have supportive friendships and interests that could extend them.

DISENGAGEMENT FACTORS

The main factors associated with being disengaged with learning were where the learning environment was disrupted (for example, other students were disruptive, classes were interrupted, or students ignored the teacher); where the learning environment was one in which students' results were overtly compared with those of other students; and where students were engaging in risky behaviour or, to a lesser extent, had friends with risky behaviour.

Disengagement was also linked to experiencing family pressure or having negative family relationships, wanting to 'stand out', experiencing two or more adverse events over the past year, and not having interests that engaged them outside school.

Being disengaged from learning was less likely for a student who had 'anchored' or 'anchored and achieving' values (see p.17) and, to a lesser extent, had a positive attitude to their teachers and experienced some praise and achievement over the past year (outside school as well as within).

As noted earlier, students from low income families, and in decile 1 and 2 schools, showed less engagement in school. There were some similar trends for Māori and Pacific students; however, these findings need to be treated with caution because of the small number of Māori and Pacific students in the sample.

RISK FACTORS IDENTIFIED BY THE RESEARCH

Students least likely to be engaged in school are most often characterised by:

- low school motivation
- difficult school behaviour at age 12
- having 'standing out' values
- being in the 'electronic games/ no strong interests' leisure use
- having parents who were less likely to study, do voluntary work, attend meetings, or read newspapers, or who were likely to watch television regularly (a relatively high proportion of these students are from low-income families, and their mothers are least likely to hold formal education qualifications)
- difficult family financial situation
- two or more adverse experiences in the past year
- high absenteeism
- heavy television watching (from age 8)
- little or no enjoyment of reading over time (from age 8).

THE IMPORTANCE OF ATTENDANCE

There was an association between absenteeism and disengagement in learning. However, risky behaviour, values, being in a disrupted learning environment and being in a learning environment where students were compared with each other carried more weight than being disengaged. This suggests a number of dimensions need to be addressed in any attempt to tackle absenteeism.

Absenteeism at age 14 cannot be predicted from students' earlier competency levels.

However, the high absence group at age 14 had, on average, consistently lower scores on the composite score for social/attitudinal competency from age 8, and on the cognitive competencies at ages 5 and 6.

It could be that getting a good grasp of the 'work' of school early on (at ages 5 and 6) has some bearing on attitudes shown at school from age 8; and that both of these have some bearing on later attendance.

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MOTIVATION

Students were classified into one of three clusters for motivation: the high motivation group (students with high faith in gains from school); the 'unsure' motivation group (students who were unsure about gains from school and future goals); and the low motivation group (students with a low level of faith in gains from school). At age 14, a minority (28%) of students were in the high motivation group, with 38 percent unsure and 34 percent in the low motivation group.

Motivation levels were more likely to be high for students from families with high incomes or for those whose mothers had a university or other tertiary qualification, but high motivation levels were not universal among these advantaged groups.

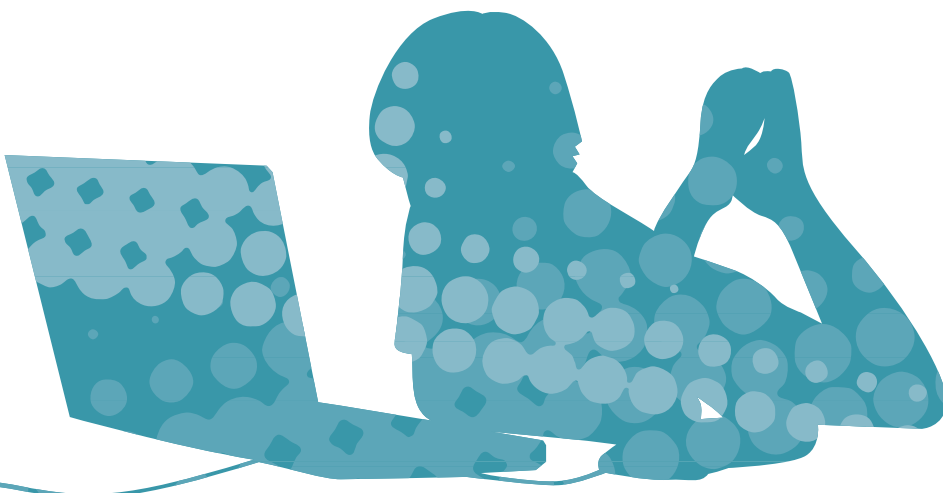
Motivation levels reflected differences in competency levels at age 14. They also showed some links with past competency levels. Average scores in the low

motivation group were consistently lower than those for the other groups for mathematics and reading from age 5, lower than the other groups for logical problem-solving from age 8, and for the attitudinal composite score from age 6.

Those in the high motivation group had, on average, higher reading scores from age 8 onwards than those whose motivation was unsure, and consistently higher average attitudinal scores from age 10. They also had higher average attitudinal scores at age 6 but not at age 8.

Those who had high scores for risky behaviour, or for being negative about their three compulsory subjects (English, mathematics and science) were more likely to be classified in the low motivation group.

Over time, motivation levels were lower for those who did not enjoy reading, mostly did not finish their homework at ages 12 and 14, and had experiences of bullying for at least two phases of the study over the period from ages 10 to 14. Low motivation levels were also associated with higher absenteeism. ©



Patterns of performance

EARLY PERFORMANCE AND AGE-14 SCORES

When looked at over time, the data showed that students with high performance early on were likely to perform well later. The converse was true for early low performers. This indicates that early foundations of learning are important and that students need to consolidate their learning – this is particularly important for mathematics.

These findings were consistent with findings from previous phases of the study. However, there were sufficiently different patterns of progress over the years to show performance can and does change over time – current performance levels at any stage should not be regarded as fixed.

Also, for high performers, if their performance dipped at any stage, they usually recovered later.

When low performers improved, those who improved steadily sustained the improvements better than those who improved with a rapid spurt.

ASSOCIATIONS WITH SOCIAL CHARACTERISTICS

Overall, social characteristics (maternal educational qualifications, family income, gender and ethnicity) accounted for some of the differences between young people's competency scores, but they did not account for most of it. Of the four social characteristics, maternal educational qualifications and family income were the two that made the most pronounced differences.

There were associations between maternal qualification and family income levels and the cognitive competencies: the higher the level for each of these social characteristics, the higher the young person's score.

There were some gender differences, with girls more likely than boys to perform highly in literacy and in the social and attitudinal competencies, but there were no significant differences in relation to mathematics and logical problem-solving.


Differences within the low family income group

When the students were aged 12, those who were from low income homes when they were 5 were less likely than those from high income homes to score at or above the median for mathematics and reading. These same patterns were evident at age 14.

However, there were further differences in family resources that distinguished high scorers at age 14 within this initial low family income group from low scorers, with the high scorers from families with a higher level of maternal qualifications and rising family incomes over the past nine years.

There were also indications that high scorers in this group were more likely to have attended early childhood education that offered good staff-child interactions and print-saturated environments.

School engagement was positively associated with higher scores and risky behaviour with lower scores. This was consistent



with differences across all students in the study.

Those with high mathematics and reading scores were less likely to be attending decile 1 and 2 schools and more likely to have attended decile 9 and 10 schools over time.

Those who scored well in mathematics at age 14 were likely to have had a good level of mathematics when they started school. Again, this was consistent with the differences across all students in the study.

There were no differences in the literacy scores at age 5 for the low and high scoring groups at age 14, but there were differences at age 6. This indicates that the first year at school is particularly important for reading for children from low income families. However, there were also initial high performers in literacy in both low and high scoring groups at age 14, which indicates that for some individuals early promise or gain is undermined by events and experiences occurring after age 8.

Literacy and enjoyment of reading was a key factor distinguishing the high scorers from the low scorers, as was the case across all students in the study.

The high scorers were more engaged in school and more likely to use internal markers of progress (that is, to have an understanding of the importance of individual effort, and the sense that learning is about understanding). This is consistent with findings across all students in the study.

ASSOCIATIONS BETWEEN THE COMPETENCIES

Within the attitudinal competencies, there are strong links between perseverance, self-management and self-efficacy (belief in one's ability); that is, students who show a high level of perseverance also tend to have high levels of self-management and self-efficacy.

There were also relationships between the attitudinal competencies and the cognitive competencies.

The attitudinal competencies, particularly perseverance, communication and curiosity, accounted for a reasonable amount of the differences in cognitive scores. So a 14-year-old who listens carefully, keeps going when they face a problem, or keeps an open mind is more likely to get a higher reading comprehension or mathematics score than one who does not.

However, at age-14, the cognitive competencies did not account for differences in attitudinal competencies: someone with a high level of reading comprehension is not necessarily going to have a higher score for, say, curiosity than someone with a low level of reading comprehension.

The relationship between attitudes and cognitive competence is more complex when traced over time. Attitudinal competencies at any one age contribute to cognitive performance at the same age (for example, attitudes at age six contribute to cognitive scores at age 6) but do not contribute to cognitive

performance at a later age (for example, attitude scores at age 6 do not contribute to cognitive scores at, say, age 8 or age 10).

However, although cognitive competencies at any one age do not contribute to attitude scores at the same age, they do contribute to attitudinal performance at the next age (for example, cognitive scores at age 6 do not contribute to attitude scores at age 6, but they do contribute to attitude scores at age 8).

These relationships show it is important for students to have learning experiences which interweave the development of social skills, attitudes and academic skills.

POSITIVE AND NEGATIVE INFLUENCES ON PERFORMANCE

There were factors, over and above the social characteristics, that were linked to performance.

Factors associated with a positive effect on performance included:

- an enjoyment of reading, starting early and continuing over time
- an understanding of the importance of individual effort, and the sense that learning is about understanding (internal markers of progress)
- showing perseverance at earlier ages (and, for mathematics, curiosity).

Factors associated with a negative effect on performance included:

- experiencing family pressure or parent-child friction
- being negative about mathematics
- being involved in bullying over the past five years
- displaying risky behaviour. ☹





Summing up

In the age 14 study, most of the students had reached mid-adolescence in good shape. There was no evidence that the transition to secondary school per se had a negative effect on students' levels of performance: students' earlier performance and engagement in school carried more weight in performance levels at age 14 than the transition itself.

Most of the young people had positive interactions with, and valued, family and friends. They were engaged in school and learning and had out-of-school activities they enjoyed spending their time on. At the same time, they were exercising more independence.

But some appeared to have formed identities that did not find support or enjoyment with family or in school and who were focused on activities of risk, defiance or manipulation (for example, bullying). Their spheres of influence often seemed narrower, and less satisfying: a repetitive circle rather than the spirals of growing independence evident in the majority. These are the young people who are often of most concern to parents, teachers, other adults, other students, and policy makers.

The data showed some reasonably strong connections between earlier performance and performance at age 14, and between what was happening at home and what was happening at school. However, none of the competency levels, school

engagement levels or behaviour of the 14-year-olds was completely predictable from their earlier pattern of scores or behaviours: what teachers and parents do, the habits they support in children and young people, and the learning environments they offer these students, do matter and can make a difference.

QUALITY EARLY CHILDHOOD EDUCATION

Some aspects of early childhood education still had associations with performance at age 14. In particular, high quality staff-child interactions, having a print-saturated environment, the length of the early childhood education experience, the child's starting age, and the make-up of the centre in terms of the socio-economic backgrounds of the children were all important.

THE IMPORTANCE OF EARLY FOUNDATIONS FOR LEARNING

It is important to establish solid foundations for learning before children start school, especially in the use of language, symbols and patterns. Also, a strong focus on reading and mathematics in the early years of primary school was particularly important for those who had fewer experiences involving the use of language, symbols and patterns in their pre-school years.

THE VALUE OF READING

However it is not enough just to learn to read – one of the strongest indicators of positive engagement in school and learning was the enjoyment of reading. Those who enjoyed reading also had higher average scores for positive relationships with family and friends, and showed less risky behaviour.

POSITIVE LEARNING ENVIRONMENTS AND ENGAGEMENT IN LEARNING

Students who were engaged in school and learning were likely to be in positive learning environments where there was good feedback, relevant teaching, challenging work, and a focus on learning at the students' pace. Students liked teachers who provided positive learning environments.

THE INTER-RELATIONSHIP OF SCHOOL AND HOME

There were links between school engagement and students' lives outside school. Those showing signs of disengagement were also likely to be experiencing family pressure or engaging in risky behaviour, and were less likely to have interests outside school. Conversely, those who were engaged in school had supportive families and friends and interests outside of school.

The social characteristics of maternal level of educational qualification and family income accounted for some of the

difference in young people's scores, but not for most. It is more likely that the pointers to 'risk' in children's development into young adults will occur for those students in low income families, or with mothers who do not hold formal educational qualifications, but it is not inevitable, and not confined to these groups. However, it is clear that an early lack of resources and less exposure to the kinds of activities that are habitual in advantaged homes makes it harder for young people from these groups.

TEACHERS AND PARENTS CAN MAKE A DIFFERENCE

It is important to establish solid early foundations for learning. Children with high performance early on were likely to perform well later, while early low performers were more likely to have low performance later on.

But none of the competency levels, engagement or behaviour of the 14-year-olds was completely predictable. Individual children's performance levels can and do change over time and current performance levels at any one time should not be regarded as fixed. The actions of individual teachers and parents can make a difference in young people's lives. ☺







