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Forming Adulthood

Past, present and future in the experiences and views of the Competent Learners @ 20

By Cathy Wylie and Edith Hodgen
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TE RŪNANGA O AOTEAROA MŌ TE RANGAHAU I TE MĀTAURANGA

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Executive summary

The main report of the age-20 phase of the longitudinal Competent Learners study focuses on the pathways taken from school by the 401 participants, their current situation and experiences, including learning dispositions, and the associations with past competency levels, school engagement, school-leaving age and National Certificate of Educational Achievement (NCEA) qualifications. Attention is paid to particular groups: those who are currently studying; those who are employed without also studying, and those who are neither studying nor employed at 20; those who have experienced unemployment; and young mothers.

The Competent Learners study has followed these young people from near age 5, with a focus on the contribution of education to the development of competency levels, alongside the contributions of family resources and relationships; activities outside school; friendships; values; and experiences. It is funded by the Ministry of Education and the New Zealand Council for Educational Research (NZCER). The study had 523 participants at age 8.

The sample was originally from the Wellington region, and 84% were still living there in 2009, when the young people were interviewed, and filled out online surveys. The sample was originally drawn to be representative of early childhood education services rather than social characteristics, and it is not representative of all New Zealanders of the same age. It has higher proportions of young people from high-income families, with somewhat higher levels of maternal qualifications, and lower proportions of Māori or Pasifika, than the national picture. This means that where family income, parental education and ethnicity are associated with differences in patterns (eg, university attendance), the percentages we report for these patterns will be somewhat higher than found with a nationally representative sample. The main focus of our work, however, is on seeing how patterns relate to each other, and how previous development in the school environment and experiences outside school contribute to the ways that these young people were developing as adults.

At age 20, main activities or situations for these 401 young adults were:

- study (63%). Many of those studying at 20 also had employment: 51% of those studying worked part-time, and 10% worked full-time, with some working casually. The combination of study with employment was not new: many were also working while they were at school, at age 16
- employment without formal study (28%)
- neither studying nor employment (nine percent—of this group, 69% were currently unemployed or receiving a sickness benefit, and 31% were looking after their child.

Many participants (61%) thought it had been easy or very easy for them to move on from school. Looking back on their leaving school, most of the participants in the age-20 phase of Competent Learners saw gains in independence and in options. They liked being able to earn money, and have learning that seemed (more) relevant and related to “real life”. However, just over half had found it hard to work out what they wanted to do, and to manage their money. At age 20, 70% had a loan of some kind—mostly student loans.

Leaving school with NCEA Level 2 or Level 3 was worthwhile, and was more likely to support a more satisfying pathway into early adulthood. Leaving school without a qualification was not only associated with greater likelihood of unemployment in the post-school years, but also with more major regrets, less happiness and optimism and more

experience of depression and mental ill health. Post-school study did not improve the opportunities for these young people: instead, they had higher rates of not completing courses they undertook, indicating their need for support with learning, and building habits of learning that they had not built in school. Simply changing the environment of learning without addressing these needs would not suffice.

Precursors to school qualification achievement—competency levels

1. Looking *backward*, using the four levels of school qualification as our unit of analysis (comparing those who did not achieve NCEA, those who achieved NCEA Level 1, 2 or 3), we found:

   Continuity of performance over time is strongest for those with earlier high performance. On average, those who achieved NCEA Level 3 had higher scores than others on the study's cognitive measures (literacy [reading comprehension, vocabulary, writing], mathematics and logical problem solving) from the time they started school. After their first year at school, they also had higher average scores than others on the study's attitudinal measures (perseverance, communication, social skills, curiosity and self-management).

   - There was little difference in performance on the cognitive measures between those who had left school without a qualification, and those who left with NCEA Level 1, or NCEA Level 2. It was the *attitudinal* competencies that appeared to make the difference in gaining a qualification, and gaining the more useful NCEA Level 2 rather than NCEA Level 1, or nothing.

2. Looking *forward*, using low and high performance on the competency measures as our unit of analysis, we found that early low performance often does *not* lead to difficulty gaining a school qualification. What teachers and parents do, their interaction with students and the opportunities they provide children and early adolescents, do matter. The first three years of school are particularly important.

Most of those with early low performance at age 5 went on to gain NCEA Level 2 or Level 3.

Low performance at age 8 may be more of a signal of later difficulty gaining NCEA Level 2 or Level 3—but still, 59% of those in the lowest quartile on the cognitive composite at age 8 did so, as did 63% of those in the lowest quartile on the attitudinal composite at age 8.

- Mathematics performance shows more consistency with later performance than does reading or writing for the group of early low performers at age 8. The difference between mathematics and reading or writing performance is somewhat less marked for the group of early high performers at age 8.

To improve the proportion of students who gain NCEA Level 2, a current government objective, will mean paying attention to ensure we do engage students in their learning, from an early age, and pay as much attention to developing their attitudinal competencies as we do to their development of literacy and mathematics. The New Zealand Curriculum (Ministry of Education, 2007) provides a framework that supports this policy and practice attention, in its focus on development of the key competencies. In previous phases of this study, we have shown that engagement in learning is related to learning opportunities that are framed to develop both cognitive and key (attitudinal) competencies at the same time. These need to be provided both in and out of school.

We identified a set of indicators of risk to satisfying pathways from school to early adulthood.

Low levels of mathematics performance at age 5 and onwards (*mathematics performance was a somewhat stronger indicator than literacy, but lack of reading enjoyment—how one uses leisure time—is another consistent indicator)*
Low levels of reading and writing at age 5 and onwards
Low levels of attitudes (overlapping with the key competencies in the New Zealand Curriculum) from age 6
Low levels of reading enjoyment—in one's own time as well as in school
Lack of a clear leisure interest, or else over-interest in electronic games
Experience of bullying—whether as a victim, bully or both
Low levels of student engagement in school at 14
Low levels of feeling supported and treated like an individual at school at 14
Low levels of positive views of learning opportunities at 14 and 16
Low levels of motivation at 14
Low levels of satisfaction with the range of subjects they take at 16
Lower levels of useful advice about what to do post-school
Thinking of having "time out" after leaving school , particularly if there are no plans for that time out
Leaving school at 15 or 16
Risky behaviour at 14 and 16: experience with alcohol, sex, trouble at school
Friendships more likely to be with those who have risky behaviour; less likely to be challenging and talking about hopes and plans for the future
Values more likely to be focused on "standing out"—how one appears to others
Having goals is less likely to be important
Family relationships more likely to be problematic
Low family income through childhood and adolescence

None of these indicators on their own would necessarily indicate difficulty finding and making a satisfactory post-school pathway into early adulthood. Often we found that they were related, and compounded each other. For example, student disengagement and risky behaviour compound each other: what happens outside school becomes more important than what happens inside school, and identity forms around the habits associated with the relationships and experiences outside school. If these do not have a real learning component, if they do not develop some sense of interest in things not yet known, and a desire to gain knowledge, skills, understanding toward some larger purpose, then they are unlikely to offer a valid alternative to school, that might serve some of its functions in a way that would better reach some adolescents. Where these outside relationships and experiences exasperate parents, then communication with parents, and their ongoing ability to support, can become eroded. Important sources of information, support and challenge for adolescents are left behind when students disengage from school: teachers, and their school peers. Those most at risk of uncertain and dissatisfying early adulthood pathways, and whose initial adult platform seemed most vulnerable to economic and social change, were most likely to leave school with no clear idea of where they wanted to go: who they could become, and how. There was little institutional support or systems to support them. Family social and cultural capital, and financial resources, could help; but it is important to note that this spiral leading to the rejection of school was not limited to those who did not have much social or cultural capital.

Post-school pathways

The traditional model where the end of school marked the end of formal study has given way to further study—of some sort—being part of the post-school experience for most young people making their path into adulthood. Most of the young people had experienced both work and study since they left school. Travel was undertaken by around a quarter of the young people, but much less by those who were neither studying nor employed at 20.

A quarter of the 20-year-olds had some major regret about what they had done since they left school, particularly those who were neither studying nor employed. Their regrets were more likely to be related to decisions around employment. But study was the source of more than half the regrets expressed, with some overrepresentation of those who left school without a qualification—11% of the sample. There are indications that those who did have a major regret related to study had started their post-school pathway less well equipped to go on learning, both in terms of approaches to learning, and having some clear purpose for their learning.

By age 20, 19% had already gained a post-school qualification, usually at certificate level, from courses that lasted less than a year. Most thought their course and qualification gave them skills and knowledge they were currently using, most often practical and specific to their work; less so in relation to team work, computer skills or written communication.

The majority of those who had studied post-school in this sample were at university, having gained the requisite entry qualification at school, or being able to use adult entry, bridging courses and a greater latitude on course entry than is likely to operate now. Most of those who were currently studying were positive about their study experiences, including support from teachers and the degree of challenge offered, and what they thought they were gaining from them. Those taking university courses were more positive about their courses than those taking certificate-level courses. Few students spent as many hours each week on their study as one would in a full-time job: not surprising, since two-thirds were also employed. Although employment and loans appeared to be necessary to allow post-school study, 79% thought their course would provide value for money.

Employment experiences

Most of the young people said they had heard about their current job through networks (family, friends, previous work colleagues), rather than employers' advertisements. Interest and usefulness, and the suitability of the job for them as an individual were the two main reasons why the young people took the jobs they had. These indicate a less tight labour market than the one currently facing young adults—but these reasons also mesh with what the young people hoped to find in employment, as indicated in their perceptions of an ideal job. The ideal job for most would connect with interests, develop over time and allow them to have time with family, one of the other main hallmarks of adulthood.

Most of the 20-year-olds' current employment offered some enjoyment, a level of satisfying responsibility, but less in terms of ongoing development, and pay. Money was not insignificant to them: it allowed them to exercise independence, to go flatting, for example, or partner, or it supported their study.

Only 26% of those who were employed and not also studying thought they would be in their current job in three years time. Stability of job interest was most likely among those who were doing what they wanted to be doing, those who had found good learning opportunities in their work and saw good opportunities for progression. The emphasis on learning within employment is interesting, since it was true for those who had not undertaken post-school formal study, as well as those who followed the post-school study route from school as a matter of course.

However, useful learning at work was much more likely to come informally than formally, and just over half thought they were learning new skills in their work. The proportions are higher among those who were employed without also

studying. Just under half were doing what they wanted to be doing. So while at one level many of the young people appeared to have taken on one of the mantles of adulthood—employment—their employment was not necessarily developing them further.

Post-school opportunities through both formal study and employment to maintain and develop learning approaches are important also: we found that levels on two of our measures of adult learning approaches were not related to past experiences, the legacies from school or previous competency levels, or to family income levels. These approaches are important in a society and economy in constant change.

Some experience of unemployment since they left school had occurred for 11% of the young people. The risk indicators outlined above, coupled with no or low NCEA levels, were often associated with the experience of unemployment. Where they had undertaken post-school study, it was mostly at the certificate level, with less advice from higher education staff on their choices. Those who had experienced unemployment in early adulthood—whether or not they were employed at age 20—were more likely to be unhappy, depressed, to think of suicide and to have more adverse events in their life.

Relationships and experiences

Family and friends were important for most of the young people, providing support, sharing activities and often extending their interests and experiences. Just over half still lived with their families, with some experiencing some tensions in this. But, overall, reports of relations with family were more positive than at age 16.

Ten percent of the sample were mothers at the age of 20. While we found that the risk factors outlined above were precursors, and this group also included some who had experienced unemployment, we found that the purpose provided by motherhood (one of the prime markers of adulthood for women) seemed to have given them more emotional resilience than others who had experienced unemployment.

The 20-year-olds were extending their experiences through friendships, romance and sex. They were interested in travel, as another means of extending their experiences. They were exercising their independence, and that included experiencing what it meant to lose control. Most drank, and overdid it at least once in the previous year. Many were discovering that while leaving school had given them a sense of greater freedom, making their way as young adults—as employees, students, sometimes parents, as jobseekers—did not guarantee a sense of having enough freedom. Money certainly played a part in this. Forty percent did not feel they were in control of their finances. However, just over a third were also saving money on a regular basis. The young adults were not always sanguine about their experiences, and one in eight had sought treatment for a mental health problem in the past year.

Internet use was not daily for most of the young people; their main use of the Internet was email, online banking, looking at websites, social networking sites and downloading. Just under three-quarters thought it important to keep up to date with current events; they mainly did so through television or newspapers. Three-quarters had voted in the 2008 general election: largely because they thought they should, or had the right to vote, and less so because they cared who won the election.

Planning ahead was seen as important—as was setting goals, though around a quarter of those who had definite goals for the next three years also had plans to achieve those goals. Most of the young people were optimistic about their future (77%), and many about their career path (67%). However, they were much less optimistic about the wider context for their futures: 30% or less were optimistic about the country's economic future, the world's future political situation or the future of the environment.

1. Introduction

This phase of the longitudinal Competent Learners study returns to the sample as they turned 20. We have followed these young people from near age 5, through funding provided by the Ministry of Education and NZCER. At age 8, the sample numbered 523, at age 20, 401.We had last gathered information from them when they were 16, and mostly still attending school. Those who were still at school looked forward to more autonomy in their decisions after they left school, but they also foresaw some challenges—often around the very exercise of choice that appealed to them (Vaughan, 2008). At 20, school was behind all the young people, and they were making their way among a range of options and pathways. Sixty-three percent of the sample were studying in tertiary and post-school settings, and most of these also had some employment. Twenty-eight percent were solely employed, and were not undertaking formal study towards a qualification. Nine percent were either unemployed, receiving a sickness benefit or looking after their child.

What previous experiences, support, performance and decisions make it more likely that a 20-year-old will be studying, employed or find themselves out of work? How do they make decisions about study and jobs? Are they happy with their decisions? What attitudes to learning and opportunities for learning do the 20-year-olds now have? Are they well-positioned for a world where both immediate post-school and ongoing pathways are more complex than for their parents (Raffe, 2003, Vaughan, 2010, Vaughan, Roberts, & Gardiner, 2006) and where individual lifelong learning capability will increasingly matter? To what extent do our previous findings from the Competent Learners study (Wylie, Hipkins, & Hodgen, 2008) about the way individual learning identity develops within sets of relationships and experiences hold when the young people have moved beyond the school setting?

Our specific questions for this phase of the study were:

1. *What experiences of learning and work do 20-year-olds have?*

   What patterns or trajectories of education and work are evident between ages 16 and 20?

   Did the sample at age 20 do what they thought they might do when they were aged 16? If they did, what supported them to follow that path or development, and how satisfied with it are they now? If not, why did they not follow that path or development, and how satisfied are they with what they did and can now do?

   Why do some young people make more changes of direction (eg, switching field of study) than others? Conversely, what supports young people to stay "on track" in their chosen course of study or work?

   What enables some young people to "get back on track" or find a better path in education while others in a similar situation do not?

   Are different patterns between ages 16 and 20 associated with different levels of feeling valued, resilience in relation to the future at age 20, mental health, family resources, and values and views of careers at age 16 (eg, emphasis on active development in a specific field rather than portfolio)?

2. *What constraints are there for young people's decision making between 16 and 20, and current situation at age 20 arising from secondary school course choices, and their amount, kind and level of NCEA and NQF (*National Qualifications Framework*) credits?*

3. *What is the role of different forms of advice (parents, friends, in-school advice, Career Services and other government services); support (including taking an interest; monetary gift or loan); accessibility of courses or work; costs (eg, course and living costs); experiences of "gap" time; values (eg, a "home/family"-centred identity*

valued above a desired career if that means study or work in a different place) in helping young people make education or career decisions they are glad they took, or conversely, regret?

4. *What earlier patterns of engagement and achievement in school, school success, extracurricular interests and family support, best support decisions about the first steps out of school that allow further learning and development?*

   Conversely, which factors from previous experiences and relationships are associated with young people feeling they have no pathways open to them at 20, or only pathways to something they do not value?

5. *How do young people's expectations around career and work mesh with what they find when they start work?*

   What learning experiences within work do young people experience, and how do they value these experiences?

6. *What are the implications of the answers to research questions 1–5 for policy and practice to support the transition from school?*

This report addresses these questions through the quantitative information we have from our CATI (Computer Assisted Telephone Interviews) and online surveys with 401 of the Competent Learners sample who agreed to take part in this phase, with data from earlier rounds of the study, and data on school qualifications and tertiary enrolments and course completion.

The data gathering with the 20-year-olds took place between December 2008 and early October 2009.[1] Participants also gave us their permission to use their national school identification number to access information about their study and qualifications from the Ministry of Education, who then extracted the data specific to this sample for us. We used Ministry of Education data to get information about the participants' highest school qualifications, and post-school qualifications and courses in 2008.[2]

The structured interviews, which mostly asked open questions, with the answers coded by the interviewer using predeveloped codes, and online surveys are available from the authors. We used the research questions for this phase of the study as the basis for developing or identifying items to include. Some questions and items from the age-16 phase were continued, so we could see what changed over time. These included questions about what (would be at age 16, and now were, in age-20 reflection) the best things about leaving school, and the hardest things, and perceptions of what a career was.

To measure lifelong-learning dispositions, we used nine items from our age-16 measures of attitudinal competence, and with the permission of Ruth Deakin-Crick and the University of Bristol, added two subsets of items from the Effective Lifelong Learning Inventory (ELLI). The ELLI consists of seven subscales, and 89 items (too many for our study). We found several of the ELLI subscales were closely correlated, and some overlapped with our existing items from age 16. We therefore chose two subscales that were quite distinct from each other. One subscale, "Strategic awareness", had

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1 Ben Gardiner co-ordinated the fieldwork team, and undertook the work with Sally Robertson, Magdalene Lin, Chloe Parton, Tina Foulkes, Jenny Devine, Sarah Beresford, Pamela Matemberere and Jacob Shapleski.

2 Our thanks to David Earle of the Ministry of Education who co-ordinated the extraction of data relating to our sample from the different Ministry of Education data-sets.

There was not always an exact match between the data we got from the young people about their courses and qualifications, in 2009, and the 2008 data from the Ministry of Education, drawn from a range of different data-sets, using information from post-school educational institutions and providers, and the New Zealand Qualifications Authority (NZQA). Appendix A outlines some of the issues in matching our study data with the Ministry of Education data-sets, largely due to different categorisations used, and issues with categorising and eventually prioritising study paths for analytical purposes, when quite a few people undertake post-school study in more than one kind of course.

good correlation levels with the subscales not used, providing an indicator of other aspects, and the other, "Fragility and dependence", did not.

To see what post-school study experiences were like for our sample, we used four scales from the Course Experience Questionnaire (CEQ), which has been used to provide information on tertiary student experience in Australia since 1992, and more recently, on New Zealand tertiary student experience.[3]

Some questions relating to financial situation and planning were drawn from the 2005 ANZ Survey of Adult Financial Literacy in Australia (A C Nielsen/ANZ, 2005), which was also used in New Zealand in 2006. The Australian version was used because it provided all the survey items, and because the items were for self-report, as we intended to use in this study.

The more varied nature of the young people's situation at age 20 was apparent as we identified banks of questions that would apply to some of the young people, but not all: within the interview itself we needed to carve out a number of different paths, and see how they intersected.

Challenges for statistical analysis

This greater variation in situation and experience over the previous four years, since we had last talked with them, also posed five new issues for our analysis. The first issue was defining "outcome" measures. The second was that the outcome measures we decided on did not take the continuous form that is most amenable to statistical modelling. The third is that many factors are interrelated. A fourth issue is that we cannot link choices made by the young people to the opportunities available to them. Finally, we are limited by our sample size when it comes to exploring some differences.

1. Defining outcomes at age 20

Differences in the age at which the study participants had left school meant that while some had been out of school for four years (or more), many had been out of school for two years only. Unlike school, there was no common frame for experience over the four years since we had last interviewed the young people, and no common "outcome" at age 20: some were employed and had left study behind; others were studying—but were also employed. The meaning of employment could be quite different depending on how it fitted within a young person's overall situation, and whether it was a means to an end (providing income to live on while studying for a desired qualification), or the current end (providing income to live on and a form of adult identity).

There is no single measure for the worth and potential of a 20-year-old's situation. We have used the young people's self-reported levels of lifelong learning dispositions; and a measure of their optimism. Standard measures of reassurance about the tracks being taken immediately post-school are also used: whether they are "gainfully" using their time, through employment, or through study, or neither of these. We found that those who had experienced some unemployment since they left school, whether or not they were currently employed at age 20, tended to be less optimistic, less happy and more likely to have major regrets about what they had done since leaving school, so we also look at the previous experiences, relationships and school performance of this group. And we look at those who are already mothers, who have moved more rapidly into one of the main hallmarks of adulthood than their peers. Many of the young mothers were also part of the neither studying nor employed group at 20, and might be seen by some as part of this latter group for policy purposes, but the young mothers, as a group, do show some different patterns from those who had experienced unemployment.

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[3] Graduate Careers Australia/ACER. (2008). *Graduate course experience 2007.* Melbourne: Graduate Careers Australia.

2. Measures and their amenability to statistical modelling

The next issue for analysis in the age-20 phase of the Competent Learners study was that most of these age-20 measures of outcomes did not take a form which made them amenable to the kind of statistical modelling we had undertaken in previous phases of the study. We had used linear models, which need continuous measures, such as scores from 1 to 10. We could use such models for those measures that were continuous (such as the lifelong learning dispositions), but the other outcome measures were either binary (with two possible outcomes; eg, did not gain a school qualification/did gain a school qualification), ordinal[4] or multinomial[5] (with three or more values).

We undertook some statistical modelling to see which key factors related to experiences, relationships and decisions at age 20, 16 or earlier, appeared to account for variation in outcomes. Logistic regression models were used for binary outcomes, and multinomial models for the outcomes with three or more categories. These models did not account for much of the variance between individuals in their outcomes at age 20, such as whether they had experienced unemployment or not.

We found in most of this modelling that what one might think of as outcomes from the past, such as school-leaving age, led to the disappearance from the model of most of the links with the key factors that had shown relations with the age-16 outcomes, and the links which are shown with school-leaving age in Chapter 2. Fewer variables (often four or fewer) were statistically significant in the models, typically because of the associations between all the variables. School-leaving age was often the dominant variable in the model.

Because other factors became invisible in the model, "soaked up" by one or two key indicators, such as school-leaving age, such modelling in fact is limited in its ability to yield additional understanding of what leads to an outcome, or which particular factors may be more important.[6] As a further example, modelling of the outcome of whether 20-year-olds were currently in formal study identified NCEA levels as particularly important, but because NCEA Level 3 is required to enrol at a university unless open entry as an adult is used, it operates as a "gate-keeping" factor that soaks up other factors that are themselves related to the achievement of NCEA, and masks their role.[7]

3. Interrelationships between factors

Many of the variables that have a bearing on the outcomes we modelled were interrelated. This contributed to the sometimes severe reduction to just a few factors in the models. These variables were often interesting indicators, but it would be unwise to put all one's policy or practice attention on *just* these variables that remain in the models, because of these interrelationships. To interpret these models required in fact a return to the bigger picture, of how these variables relate to others. Thus we have found simple cross-tabulation (comparing the proportion of one category with the proportion of another category in relation to another variable, such as comparing the proportion of those who left school with no qualification who were employed at age 20 with the proportion of those who left school with NCEA Level 3 who were employed at age 20) to be a particularly useful tool in the analysis of the age-20 data, since it allows us to build up composite pictures that show interrelationships and allow the identification of some common strands in

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4 Ordinal measures indicate increasing amounts of what is being measured (eg, NCEA level: no qualification; NCEA Level 1; NCEA Level 2; NCEA Level 3).

5 Multinomial measures are different from ordinal measures in that the categories included are not clearly linear. For example, current main activity at age 20 could be studying, employment or neither of these.

6 Appendix B describes the set of variables that were used in the modelling. Appendix C gives the details of the approach to the modelling undertaken, and describes the results of models summarised in the body of the report.

7 One example: we fitted a model to predict whether a young person would experience unemployment between school and age 20. We used variables that had emerged in the cross-tabulations, but all that remained in a model that had good levels of fit and accounted for 36 percent of the variance in whether someone would experience unemployment in this period were highest school qualification, and whether the young person was studying in 2009. Most of those studying in 2009 went straight from school to university, and although employed and sometimes seeking employment were likely to report study as their main activity.

these relationships by looking across the composite pictures. These can be thought of as different lenses on the processes of moving from school into new frames for acting, learning and gaining a sense of oneself, an identity or the platform for action, through the ways the young people started to form themselves as adults by the choices they made and the emphasis they gave to some activities more than others.

Three of the main lenses we use are related to current policy concerns:

- school-leaving age
- highest school qualification
- current situation at age 20 (studying; solely employed; neither studying nor employed, with some closer attention to those who are mothers, those who have experienced unemployment since they left school and those who left a post-school course without completing it). There are some overlaps in these last three subcategories.

We also look through the lens of different levels of:

- lifelong learning dispositions
- optimism.

This approach allows us to describe interrelationships more richly than we can with statistical models. But it does run another risk, of stereotyping, of treating all members of a group as if they shared all the trends that show some differences from other groups: which they do not. These are groups with fuzzy boundaries, which overlap, rather than completely separate populations. There is also variation within each group: the factors that are more likely to appear in one group than another will also be more closely interrelated for some in that group than for others in the group. So, within the same group, there may be some whose experiences and competencies are more co-reinforcing than others. For others within the same group, relationships between the factors that make the group distinctive from other groups will be less overlapping. Thus within the same group can be found those who may be better positioned than others to change their situation. For example, the early school-leaver who had risky behaviour as a 16-year-old, but did not have this risky behaviour compounded by friction with parents, or lack of engagement in school, is more open to change through continuing levels of family support and communication, and absorption in learning, than their peer with similar levels of risky behaviour whose parents responded with anger and withdrawal of support, or who had found nothing of interest in school that might lead to areas of interest to follow and be absorbed in once school was over.

4. Lack of data on opportunities

A prime value of this longitudinal study is that we have good data on previous experiences, relationships, thoughts of the future, motivation, support and so forth. But we do not have data on the opportunities available to the young people, such as the local labour market, or courses available. For example, early school leaving can be influenced by the availability of work for young people, or accessible study programmes outside school (Ryan & Watson, 2006). Without being able to match these two, one is in danger of over blame (or praise)—taking individual situations to be the sole result of individual decision making (Vaughan, 2008). This longitudinal study does have an emphasis on how earlier opportunities can develop habits that are more, or less, likely to provide knowledge and skills and attitudes that would stand an individual in good stead in many situations; and so in our final section on the policy and practice implications of our findings, we do include thinking about these earlier opportunities; but we are not able to say much about current contextual opportunities related to employment and study supply. If this study is able to continue, and see what happened to this sample after the end of immediate post-school study, in a time of rapidly changing employment opportunities, such contextual information would be highly desirable.

5. Low numbers for some situations of interest

A final issue in relation to the quantitative analysis is that the variation in situations meant that for many aspects of interest, the actual numbers who were in a particular situation were too low to undertake any robust modelling of differences. We cannot tell, for example, what distinguished differences in lifelong learning dispositions or views of work and its opportunities for learning among the group employed full-time, comparing different occupations within that group. But what we find here may be useful to follow up in closer studies of groups of particular interest.

We anticipated some of these analysis issues when we designed this phase of the study, which led us to include a qualitative component which would enable us to have a much better understanding of how different factors could interrelate, and how they were related to post-school decision making and situation at age 20. Our qualitative component used the quantitative findings reported here to identify themes of particular interest, and to identify 29 individuals for further interview. These interviews were undertaken between August and October 2010, and are reported separately (Patterson, 2011).

Looking back and looking forward

One of the chief values of a prospective longitudinal study like this, which has a broad sample rather than a target group, was able to be realised in this phase. We were able to look *backwards*—to compare, for example, earlier competency levels of those who gained NCEA Level 3 with those who gained NCEA Level 2, Level 1 or left school without any NCEA qualification. Such backwards comparisons, using the later achievement or state as the unit of analysis, can magnify earlier differences. A backwards look can show that there are clear differences emerging at certain ages. It would be easy to assume from this that, for example, a low level of performance on the cognitive competencies in the study at age 8 heralds later lack of qualification. But when we can also look *forward*, by taking the quartile groups of performance on the competencies at age 8 as our unit of analysis, and seeing where these quartile groups "ended up" in terms of their school qualifications, we see that many of those who had low performance at age 8 in fact gained NCEA Level 2 or Level 3.

Our sample at age 20

The Competent Learners study[8] has followed a cohort of Wellington region students from their final months of early childhood education. At age 16, most were still living in the Wellington region, but nine percent were living in other parts of New Zealand. At age 20, 16% were living in other parts of New Zealand, with a few living in Australia, and one in London.

Our cohort is not intended to be representative of all New Zealanders of the same age. The study sample was originally drawn to be representative of different types of early childhood education experience, rather than to be nationally representative in terms of social characteristics. This reflects the original purpose of the study: to see what contribution early childhood education made to the development of competencies we thought would be important to becoming lifelong learners.[9] Compared to the national average, our sample has higher proportions of young people from high-income families, and those whose mothers have trade or tertiary-level qualifications, and lower proportions of Māori and Pasifika. Where there are differences in experiences and perceptions associated with these social characteristics, our

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[8] When the sample were younger, the study was called Competent Children; when they were in their adolescent years, we built on the original title, and called it Competent Children, Competent Learners. Now we have simplified the title again.

[9] The study began with near-5-year-olds in their final early childhood education service, with a next phase of data collection after their first year at school, when they were 6. Subsequent phases occurred two-yearly, when they were aged 8, 10, 12, 14 and 16. Reports from the study are available on www.educationcounts.govt.nz or www.nzcer.org.nz, which also lists papers from the study. The study was made possible by the continued interest and financial support of the Ministry of Education and NZCER.

findings will probably give a somewhat more positive picture than a sample that had been drawn to be representative of population characteristics. However, we generally have sufficient numbers of young people in different social groups and with different kinds of experience to explore how these are related to what the young people brought with them from school, and their current situation, learning approaches and optimism.

Table 1.1: Social characteristics of Competent Learners study sample at age 20

	Number (*n* = 401)	%
Family income (at age 16)		
Low–medium income (< $50,000)	111	28
Medium–high income ($50,000–$100,000)	162	40
High income ($100,000+)	128	32
Maternal qualification		
None	51	13
Trade/Mid-secondary	186	46
Senior secondary/Tertiary	80	20
University	82	20
Gender		
Male	166	48
Female	178	52
Ethnicity		
Pākehā/NZ European	337	84
Māori	34	8
Pasifika	19	5
Asian	11	3

At age 20, we aimed to make contact with all 496 individuals who had taken part in the study at age 12. We used addresses and phone numbers from the age-16 phase, and we also used the contacts we had been given at that age, the White Pages on the Internet and Facebook and Bebo, to find the sample again. Some of those we aimed to contact and invite their participation in the study at age 20 had not taken part in the study at ages 14 and 16. We offered all participants who completed both the interview and the self-report a $50 voucher.

Of the 401 participating at age 20, 95% (*n* = 382) have taken part in all the Competent Learners study phases. Eight who had not taken part in the age-14 and age-16 phases rejoined the study, as did 11 who had not taken part in the age-16 phase. We lost 66 of those who had taken part in the age-16 study: sometimes we could not track them down, sometimes they were not interested when we first approached them and sometimes they expressed interest, but proved hard to recontact or confirm a definite time for the interview or to undertake the self-report online survey: we were not the most important thing in their lives! Those we lost from the study between ages 12 to 20 were more likely to be male, Māori or Pasifika, with mothers with no or trades/junior secondary-level qualifications, and low family income when they had been aged near-5.

We retained sufficient numbers to analyse differences in maternal qualification, family income level and gender; however, as in the age-16 phase, we have had to amalgamate ethnic affiliations, with Māori and Pasifika in one group, and Pākehā and Asian in another. This amalgamation for analysis purposes was guided by the similar trends in

competency scores for Pākehā and Asian participants on the one hand, and Māori and Pasifika participants on the other hand.

There is a link between social advantage and school qualifications; and also with gender. The nature of our sample means that we have a higher proportion with NCEA Level 3, than the population as a whole. The comparisons with national data in Table 1.2 are for 2007 school-leavers;[10] around two-thirds of our sample had left school in or before 2007, and just over a third in 2008.

Table 1.2: NCEA qualifications and immediate post-school destination of Competent Learners study sample at age 20

	Number (*n* = 401)	%	All NZ school-leavers 2007 %
NCEA level/NQF equivalent			
No completed NCEA/NQF qualification	31	8	18
NCEA Level 1	53	13	16
NCEA Level 2	89	22	27
NCEA Level 3/University Entrance[11]	223	56	39
Immediate post-school destination			
Neither employment nor study	49	10	
Employment	86	21	
Non-university study	106	26	
University	170	42	

Report outline

This report of the age-20 phase of the Competent Learners study is intended as a source document for those wanting details related to their particular interests. For that reason, there is some overlap between some of the sections, especially those related to the lens of school-leaving age, school qualification and age-20 activity. A summary of main findings is also available.

Section 1, *School legacies*, has two chapters. We start by looking at how previous experiences and competency levels are related to different ages of school leaving, and what difference leaving before the age of 17 made in the post-school years. Then we move to the next "lens", NCEA performance, and similarly look backwards to see which earlier factors

[10] Using figures given in Minister of Education. (2008). *New Zealand schools 2007. A report on the compulsory schools sector*. Wellington*:* Ministry of Education, p. 20. Data about immediate post-school situation are from the Ministry of Education data-set for the sample.

[11] University Entrance (UE) is the minimum requirement to go to a New Zealand university. The qualification is made up of 42 credits at NCEA Level 3 or higher, made up of: 14 credits in one approved subject (www.nzqa.govt.nz/qualifications-standards/awards/university-entrance/approved-subjects-for-university-entrance/), 14 credits in another approved subject (www.nzqa.govt.nz/qualifications-standards/awards/university-entrance/approved-subjects-for-university-entrance/)and 14 credits from one or two additional domains or approved subjects, together with Literacy requirements—8 credits in English or te reo Māori (www.nzqa.govt.nz/qualifications-standards/awards/university-entrance/literacy-requirements-for-university-entrance) at Level 2 or higher, made up of: 4 credits in reading, 4 credits in writing; and Numeracy requirements—14 credits in Numeracy at Level 1 or higher, made up of: 14 credits in Mathematics or Statistics and Probability or Pāngarau (Source: NZQA website).

are related to different levels of NCEA qualification, and forwards, to see what difference it makes to achieve at different NCEA levels.

Section 2, *Pathways into adulthood and initial adult platforms* first describes the pathways the young people took from school into current study, employment, or neither study nor employment, at age 20. The chapter following focuses on experiences of study post-school: current study; course completion by age 20; course noncompletion; and course changing. The next chapter focuses on current experiences of employment: reasons for current jobs, and what the jobs of 20-year-olds offer in terms of learning opportunities, as well as pay and conditions. Two short chapters complete this section with a focus on those who have experienced unemployment post-school, or have become mothers. Again, we look back to see what might have contributed to these different situations, and then explore how these different situations are related to differences in current relationships, values, activities and feelings.

Section 3, *Current experiences*, describes the 20-year-olds' relationships, values, activities and experiences. Some of the material in this section will have been referred to in earlier chapters, as we chart differences between young people in different situations; but this section provides detail, and material that is not used in Sections 1 and 2 because there are no clear patterns relating it to different age-20 situations, or the different platforms one can think of as the young people reaching as they made their way post-school, and the ground for the next stage of their lives as adults.

Section 4, *Current learning approaches*, focuses on ways of learning and on confidence in a future, that give some indication of the platforms the 20-year-olds now had for the next stage of their adult journey. We first describe the three lifelong learning approaches that we found, and then investigate what past and current experiences appear to contribute to, or go with, differences between young people in terms of their learning approaches. A brief chapter on optimism, which can fuel motivation and action as the young people keep moving into adulthood, concludes the report chapters.

In Sections 1 to 4, we report patterns in relation to differences between groups, using cross-tabulations against interview and self-report data, and a common set of variables: some from earlier phases of the study, including earlier competency levels; some from the 2008 Ministry of Education data-set; and some from the current data collection phase. We use factors that we used in our age-16 analysis, and some new factors derived from the age-20 interviews or self-report surveys; these factors group related items together. Factors that we use are described in Appendix B. We have generally reported associations based on cross-tabulations that had a chi-square test of independence statistically significant at the $p \leq 0.05$ level (indicating a one in 20 odds that the association has occurred by chance). We have also reported some differences that were close to this threshold, where they are consistent with other differences. Models are used in some of the chapters.

Section 5, *Forming adulthood*, draws different threads together from the previous chapters to return to the research questions we posed ourselves at the start of the age-20 phase of the Competent Learners study. We found that the "answers" to these questions were interlinked, so our conclusion focuses on the key patterns we found, rather than answering each question separately.

School legacies

2. School-leaving age

New Zealand students usually start their schooling careers on their fifth birthday, rather than being part of a uniform intake at a defined time of the year. This means that students can have different lengths of time at school while being in the same year group at secondary school, and that students can reach the end of their schooling at different ages. Education was compulsory until the age of 16 for this sample. Sixteen of the young people took advantage of the provision for "early exemption",[12] and left before their 16th birthday. Another 41 left school when they were 16. Almost half left when they were 17 (48% [n = 191]) and 38% left when they were 18 (n = 153).

New Zealand also has a somewhat individualised approach to the decision of when to leave school. There are no graduation requirements. There is a three-level qualification, the National Certificate of Educational Achievement (NCEA). Most students aim to achieve NCEA Level 1 in Year 11 (when they are likely to be aged 15 or 16), Level 2 in Year 12 (when they are likely to be aged 16 or 17) and Level 3 in Year 13, which is the final year of courses offered by secondary schools, and when most students are aged 17 or 18. NCEA itself is a mixture of external examinations and internal assessments against a set of subject-related standards, and students' NCEA qualification content and the number of credits will vary. There is a set of literacy and numeracy standards that must be achieved to get Level 1; and for those who are aiming towards university study, a set of literacy and numeracy standards that contribute to qualifying for University Entrance.

Table 2.1 shows the reasons the Competent Learners @ 20 sample gave for why they left school. Most are linked to the final year of school courses.

[12] The Ministry of Education describes early exemption as: "Parents of students aged fifteen may apply to the Ministry of Education for an exemption from schooling on the basis of educational problems, conduct, or the unlikelihood of the student gaining benefit from attending available schools. Parents are required to give details about training programmes or employment that the student would move on to in the event of an exemption being granted."
(http://www.educationcounts.govt.nz/indicators/student_participation/schooling/1951).
The Ministry of Education has taken a much more stringent approach to granting exemptions in the last few years (after the Competent Learners sample would have reached the age of 16), resulting in far fewer applications, and even fewer exemptions being granted.

Table 2.1: Reasons for leaving school

Reason	(*n* = 401) %
Completed Year 13	73
Could leave legally (includes boredom, lack of enjoyment)	12
Went into training/education	5
Got the school qualification I needed for what I wanted to do	4
I was encouraged/had to leave (eg, expelled)	2
I had a child/was pregnant	1
Financial reasons	1
Family reasons	0.2
Other	5

Leaving school before the age of 17 usually means that students have left school without NCEA Level 2 or Level 3, the qualifications which are the main prerequisites to university study, and to other tertiary study that is likely to widen employment choices. However, it can also mean that students have clear goals in mind that do not need NCEA Level 2 or Level 3, such as a particular job, certificate-level qualification or apprenticeship. In this sample, we see this range when we look at the reasons students who left before they were 17 gave for why they left school then. While 47% of the group who left school before they were 17 did so because they legally could (a reason that is given by only six percent of those who left at ages 17 or 18), 12% left because they had the qualification to do what they wanted to do, and 14% found other training/education options more attractive than continuing in the school environment. Higher proportions of this early leaving group also left because they were encouraged to or had to leave school, or because they were pregnant.

School qualifications

Table 2.2 shows the young people's school qualifications, whether the students got NCEA Level 1 literacy and numeracy standards, and UE literacy and numeracy standards, in relation to school-leaving age, using Ministry of Education data. Most of those who left school before they were 17 left without NCEA Level 2 qualifications, which have since become the new benchmark for judging national school-leaver performance. While those who left at age 17 and those who left at age 18 had similar patterns, those who left at age 18 were much more likely to have UE literacy and numeracy standards.

Table 2.2: Highest school qualification by school-leaving age

Qualification	Left school before 16 (*n* = 16) %	Left school at 16 (*n* = 41) %	Left school at 17 (*n* = 191) %	Left school at 18 (*n* = 153) %	Overall for sample (*n* = 401) %
General qualification:					
No completed NCEA/NQF qualification	100	24	2	1	9
NCEA Level 1/other Level 1 NQF		39	14	6	13
NCEA Level 2/other Level 2 NQF		29	22	22	22
NCEA Level 3/other Level 3 NQF		7	62	70	56
Literacy and numeracy qualifications:					
NCEA Level 1 literacy & numeracy	25	83	95	98	92
UE literacy & numeracy		15	47	76	53

Notes: Columns may not add to 100 because of missing data and rounding.
N = 401.

Looking back—from the school-leaving age to earlier competency levels

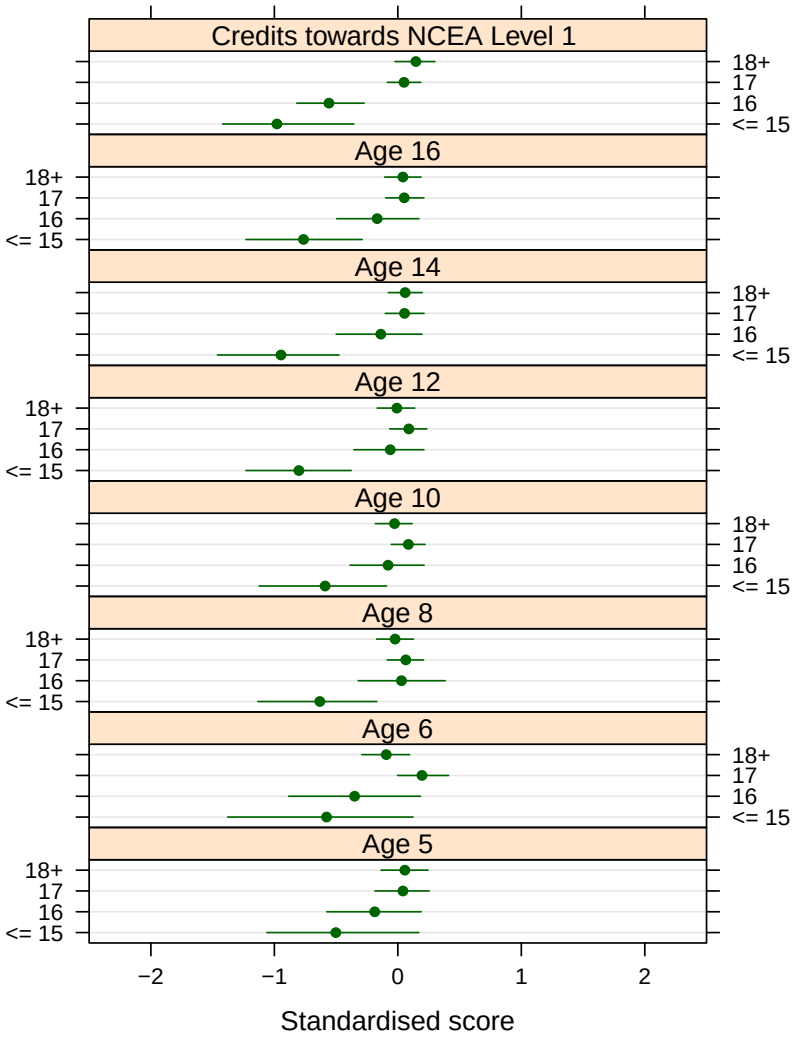
Figure 2.1 compares the different trajectory over time using plots of average scores on the cognitive or attitudinal competency composite measures, and NCEA Level 1 achievement for the four groups of when the young people left school (at age 15, 16, 17 or 18 and older).

The vertical axes in Figure 2.1 describe these four subgroups. The horizontal axis represents the standardised cognitive or attitudinal composite score (the composite score is the average score of each of the separate measures that belong in either category of competency). The scores at each age were standardised (to have mean 0 and standard deviation 1) so that progress over time could be meaningfully compared. The mean score for each subgroup at each age is represented by a dot, and an approximate (bootstrapped) 95% confidence interval by bars on either side of the mean. The length of the bars differs, depending largely on the size of the subgroup. In Figure 2.1 the largest groups are those that left school at 17 and 18 (*n* = 191 and 153, respectively), and these are the groups with the shortest error bars. The smallest group is those who left school before they turned 16 (*n* = 16), and this group has the longest error bars.

From the plot it is possible to see which subgroups may have different scores in terms of statistical significance. If the error bars of two groups do not overlap at all, the subgroups' scores are almost certain to be significantly different; if they overlap only a little, they are likely to be significantly different; if the means are close in value and the error bars overlap a lot, the subgroup scores are unlikely to be different. We have used this way of illustrating the trajectories over time of different groups of interest in terms of their previous competency scores throughout the report: these illustrate differences looking *back* (ie, starting with an "outcome" known by age 20, such as school-leaving age, NCEA or current main activity at age 20).

Figure 2.1 shows that those who left school before the age of 16 tended to have lower average scores on the cognitive competency measure from an early age, but with not much difference between their average score and the average score of those who left school at 16 until age 8. It is not until age 14 that we see differences in average cognitive competency scores between those who left school at 16, and those who left at ages 17 or 18.

Figure 2.1: School-leaving age and earlier cognitive competency composite levels



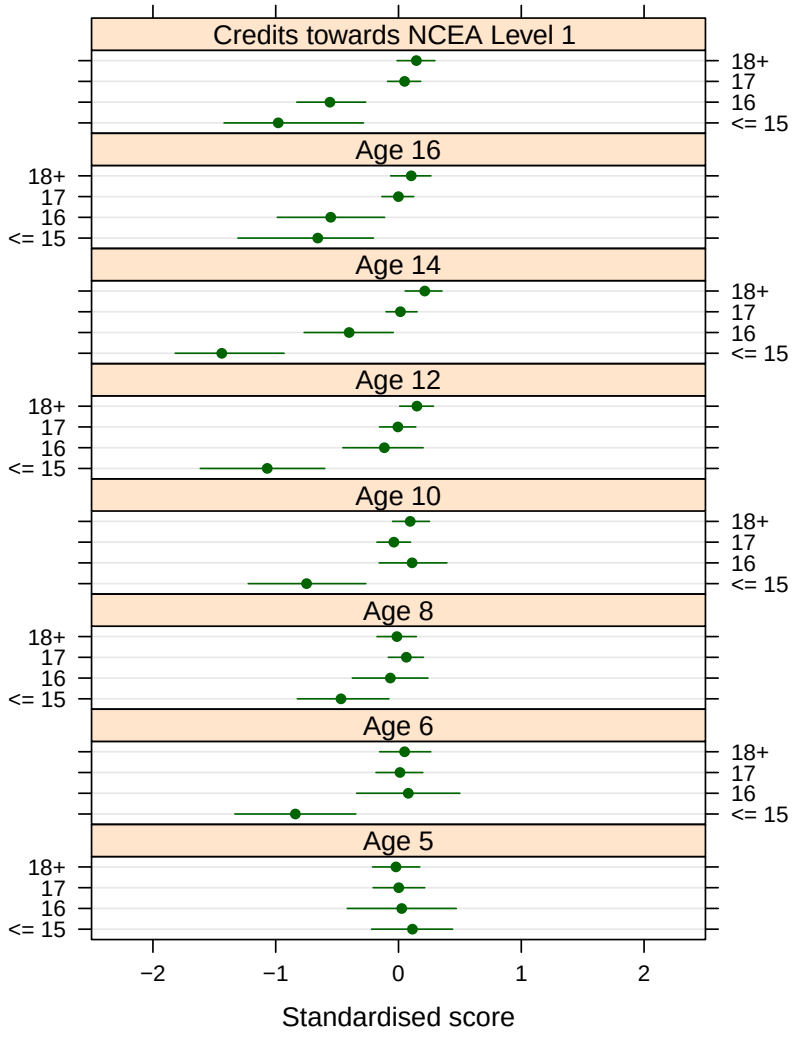
Note: N = 401.

Many students who did not complete a full NCEA Level 1 qualification did have some credits towards one. We used the expected percentile[13] rank score for the age-20 participants for NCEA Level 1 to include all the participants in the figure.

Figure 2.2 shows that attitudinal competency composite scores at age 5, just before the start of school, were much the same for all four school-leaving ages. But after their first year at school, those who would go on to leave school earlier than others were already showing a lower average attitudinal competency composite score. At age 12, those who would leave school when they were 16 also lost ground in their average attitudinal competency composite score in comparison with those who stayed on until they were 17 or 18.

[13] The "expected percentile", originally devised by Michael Johnston at NZQA, and used in NZQA and Ministry of Education analyses of student performance, was used to measure students' performance in NCEA Level 1. This measure provides an estimate of performance relative to peers across achievement standards (it does not include unit standards).

Figure 2.2: School-leaving age and attitudinal competency composite score



Note: N = 401.

At age 14, we also asked teachers to give their judgement of each student's overall achievement levels. To some extent, this judgement would take into account student engagement in work, and overlap with the information they also gave about each student in relation to the attitudinal competencies. Almost half the early school-leavers came into the lowest quartile of these overall teacher judgements at age 14, cf. 24% of those who left school later. This is much the same picture as we get from the attitudinal composite levels.

Looking forward—from the earlier competency levels to school-leaving age

Lower scores on first the cognitive and then the attitudinal competencies in the first years of school are evident for those who left school before they turned 16. Yet it is a mistake to think that early low scores on their own are enough to lead to such early school leaving. When we looked *forward*, looking at the school-leaving ages of those who were in the lowest quartile on our competency measures at age 8, we found that only seven percent of those in the lowest quartile on the cognitive competency composite at age 8 ended up leaving school before they turned 16, and 11% when they were at the legal school-leaving age, 16. These are higher proportions than for those in the mid-quartiles on the cognitive competency composite at age 8 (four percent of whom left at 15, and nine percent at 16), and those in the highest quartiles (one percent of whom left at 15, and 13% at 16), but the proportion is still low. The patterns were very similar when we used quartiles on the age-8 attitudinal competency composite measure.

Experiences and relationships linked to early school leaving

We turn now to describe the prior variables that were linked to leaving school before the age of 17, and then look at how early school leaving relates to the young people's post-school experiences and situation at age 20. Most of the reasons for early school leaving can be thought of as "push" reasons, such as being bored, or being encouraged to leave school. But some in this group had clear goals that they judged were better met outside school. School-leaving age is an important variable in this phase of the Competent Learners study, not just because it has a bearing on the kind of tracks into adulthood that the young people were making, but also because it has a bearing on how far along a particular track a young person was likely to be at the age of 20.

In the age-16 phase of the Competent Learners study, we found some differences in the experiences and relationships of those who had already left school, and those still at school. We return to some of those variables in our analysis here, including some age-14 school-related variables. We found at age 16 that disengagement with school often began earlier, and was evident at age 14.

A higher proportion of young people who left school before the age of 17 had low levels of engagement in school and confidence in the school environment at age 14. There was an indication that they experienced less positive learning environments in the compulsory subjects—English, mathematics and science—but the differences were not statistically significant. They were less likely at 14 to use intrinsic approaches to learning, seeing the importance of effort and of understanding. They were less likely to have settled into secondary school straight away (23%, cf. 38% of those who left school at 17 or 18). At 14, almost half of them had low motivation levels in relation to education.

We asked the young people at ages 14 and 16 what were the most important things to them currently, and what they thought would be most important to them as adults. Cluster analysis showed three groups. The early school-leavers were less likely at age 14 to be among the group we described as having values around being "anchored and achieving". They were just as likely as those who left school later to express "anchored" values around family and enjoyment of life, or "standing out" values, focused on money, friends, looking cool. By age 16, there was a much higher proportion of the early school-leavers in the "standing out" values cluster (49%, cf. 31% of the later school-leavers), and fewer (29%, cf. 45% of the later school-leavers) in the "satisfying life" values cluster (wanting to be enjoying the things they did, have an interesting job, be helpful or kind, have a good sense of humour, a happy family life and be creative).

When we looked at out-of-school interests, the early school-leavers were more likely to be in the cluster who either had no strong leisure interests, or who focused on electronic games (40%, cf. 19% of the later school-leavers); fewer had a history of enjoying reading. Some of this may relate to parental modelling: only 25% of the early school-leavers had parents whose own interests came into the "literate and involved" cluster of parental interests, cf. 49% of the later school-leavers.

At 16, many of the early school-leavers had paid work on at least one or two days a week (64%, cf. 46% of later school-leavers).

At ages 14 and 16 they were much more likely to engage in risky behaviours (including the use of alcohol, drugs and having sexual relationships), and to have friends who did so. They were somewhat more likely to have had some experience of bullying (as victim, bully or both). While they were no more likely than those who left school later to experience adverse events in their 14th year, they were more likely to do so in their 16th year.

At 14 they were more likely to say they experienced loneliness occasionally and more often (40%, cf. 25% of the later school-leavers).

At age 14, they were less likely to see their family as supportive, and more likely to report family pressure and friction (probably not unrelated to parental concerns around their low levels of engagement in school and behaviour and interests outside school). Their parents were more likely than others to say their child did not learn from mistakes.

At age 16, they were more likely to have lower levels of family support and communication, and were less likely to feel included in their family life. Their parents were less likely to think they were generally happy (56%, cf. 88% of later school-leavers), or that they often or always had an optimistic view of life (56%, cf. 76% of later school-leavers).

The age-14 patterns were mostly evident again at age 16: generally, those who left school early (and were still at school when we spoke with them) were almost twice as likely as those who left school later to be in the lowest quartile in relation to engagement in school, their attitude to school work, their absorption in learning, confidence in learning and approach to NCEA work—and also their judgement on the quality of their learning environment in the classes they took, and the relevance of their learning opportunities. They were much less satisfied than later school-leavers with their subject mix. Their subject mixes were more likely to be vocational and contextual.[14] However, they did not wish they had had more guidance about school subjects, suggesting that it was the nature of schooling and their experiences of learning, and perhaps internalisation of failure in school, that are more pertinent than particular subjects. At age 16, we found that students in the vocational and contextual clusters were as positive as others about their learning environments, but reported more disruption in their classes, largely from their peers.

At age 14, two-thirds of the early school-leavers thought they would stay at school until the end of Year 13 (as did 88% of those who left school at 17 or 18). At age 16, many of the early school-leavers still thought they would stay at school until the end of Year 13: 40%. But when they spoke about what they would do when they left school, they were more likely than later school-leavers to mention taking a break (40%, cf. eight percent of those who left school later)—a signal that many in this group were disenchanted with study). Only 17% of the early school-leavers thought they would go on to university, cf. 66% of those who left school later. Other study was mentioned by 21%, and polytechnic study by 11%. Eleven percent thought they would head for employment, much the same proportion as those who left school later.

When we looked at the number of schools attended by age 12[15] (as reported by parents), we found that only 11% of the early school-leavers had attended a single school, cf. 28% of those who left later; and 16% had attended four or more, cf. six percent of the later school-leavers. A very similar picture is evident looking at the number of schools attended by age 14:[16] 39% of the early school-leavers had attended four or more schools, cf. 21% of the later school-leavers.

Social characteristics and early school leaving

More of the early school-leavers had grown up in low-income homes, in less comfortable financial situations[17] than others by age 14, with almost half still in low-income homes by age 16. Their mothers' qualification levels were somewhat different from those who left school at 17 and 18: 18% of the early school-leavers had mothers with no

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[14] Vocational subject clusters found at the age-16 phase of the Competent Learners study usually had an alternative version of mathematics, and PE, with subjects such as computers, visual art, science, outdoor sport, food-related, technology subjects, life-skills and alternative versions of English. Contextual courses usually had alternative versions of mathematics, English, with PE and dance/drama, with subjects including technology subjects, a humanities subject, text and information management, Māori/Samoan, outdoor sport, food-related, life-skills, hospitality/tourism.

[15] We used age-12 data on number of schools attended because we have the age-12 data for all of the age-20 participants in the study.

[16] For 393 of the sample; eight of the age-20 participants did not take part in the age-14 phase of the Competent Learners study.

[17] In terms of family income levels, the proportion of family income spent on housing, ability to pay the family's bills each month and the amount of money left each month after paying bills.

school qualification, cf. 11% of those who left school at ages 17 or 18, and 16% of the early school-leavers' mothers had a university qualification, cf. 21% of those who left school later. In this sample, there are no ethnic or gender differences related to school-leaving age.

Pathways between leaving school and age 20

Information from the Ministry of Education data-set up to the end of 2008 allowed us to see what the sample were doing in the year after they left school in broad terms related to study and employment. Information from our interviews allowed us to see what happened after that first year away from school.

Table 2.3 uses the Ministry of Education data, and shows that the longer students stayed at school, the more likely they were to move on to tertiary study in the year after they left school. However, Table 2.3 also shows that just under two-thirds of the early school-leavers *did* go on to further study. More of the early school-leavers elude the broad administrative categories recorded in the Ministry of Education databases: 19% had to be classified as "other".

Table 2.3: Immediate post-school activity by school-leaving age

Immediate post-school activity	Left school before 16 (*n* = 16) %	Left school at 16 (*n* = 41) %	Left school at 17 (*n* = 191) %	Left school at 18 (*n* = 153) %
Employment	19	12	13	15
Tertiary study	63	63	73	79
Employment or study/gap	0	15	11	1
Other	19	7	3	5

Notes: Columns may not add to 100 because of missing data and rounding.
N = 401.

While quite a few of those who left school before they were 16 went on to further study, they did not go much further. At age 20, Ministry of Education data showed only a quarter had gained a Level 1–3 certificate. Another quarter was studying for Level 1–4 certificate qualifications. The remaining half still had no educational qualifications, and was not studying. The picture for those who left school when they were 16 was somewhat different: only seven percent still had no educational qualifications at age 20 and were not studying. Most of this study was at the certificate level; but 20% were undertaking bachelor's degrees. Half of those who had left school at 17 were at university, undertaking bachelor's degrees (another three percent had already completed these degrees). Fifty-three percent of those who left school at 18 were also undertaking bachelor degree study, and another two percent had already gained these degrees.

Rates of noncompletion of a course were higher among those who left school before age 17 (32% of those in this group who undertook post-school study, cf. 10% of those who left at 17 or 18)—though this may simply reflect less time out of school for those who left school at age 17 or 18. By age 20, the rates of those who left school before age 17 who had achieved some post-school qualification and who had changed a course were similar to those who had not changed a course.

However, those who left school at 17 or 18 were more likely to change their course (21%, cf. nine percent of those who left earlier), probably reflecting the fact that most of those who changed courses were changing within bachelor's degrees.

We asked the young people three main open-ended questions about what they had done since leaving school. First, we asked what they had done since they left school, prefacing our question with "*We would like to get an idea of the range of things you have done since leaving school such as studying, working, travelling, looking after family, voluntary work*". Then we asked them which of the things they had mentioned were the ones they had spent the greatest amount of time doing; and then asked them what they were doing now, giving the same examples. We also asked about any time out from their main activity, the thing(s) they had spent the greatest amount of time on.

Table 2.4 shows that most of those who had left school before the age of 17 had experience of full-time work. They were more likely than others to undertake apprenticeships, look after their own child, study part-time, experience unemployment or receive a sickness benefit; they were less likely to undertake full-time study, work part-time or undertake unpaid or voluntary work.

Table 2.4: Activity since leaving school in relation to school-leaving age

Activity since school	Left school before 17 (*n* = 57) %	Left school at 17 (*n* = 191) %	Left school at 18 (*n* = 153) %
Full-time employment	77	74	56
Full-time study	56	78	79
Part-time employment	54	65	66
Looked after own child	19	4	4
Part-time study	18	8	11
Apprenticeship	18	8	3
Travel/holiday	16	30	20
Unemployed—received benefit	16	4	3
Time out/gap year	12	18	15
Unemployed—no benefit	9	4	3
Other	9	3	3
Leisure activity	7	6	6
Sickness benefit	7	1	0
Unpaid/voluntary work	4	8	7
Casual job	4	6	7
Self-employed/contracting	0	2	0
Looked after family member	0	1	1

Note: N = 401.

Those who left school at 17 or 18 were mostly alike in their patterns of how they had spent time (see Table 2.4), but with two interesting differences. Those who left school at 17 were most likely to have travelled, taken a gap year or time out and had a similar rate of experience of full-time work as those who had left school a year earlier.

The early school-leavers who had taken time out were more likely than the later school-leavers to mention using this time to pursue a leisure activity, and less likely to mention using this time for travel or holidays.

Only six percent of the 20-year-olds mentioned just one activity since they left school. Thirty-one percent mentioned two activities, 33% three activities, 20% four activities and 10%, five or more.

Employment, apprenticeships and looking after their child were more likely to be the activities that the early school-leavers had spent most of their time on since they left school. Study was less likely. Most of this sample's years since school were before the current recession. None of the early school-leavers in this sample had spent most of their time unemployed since they had left school, and only one mentioned benefit receipt.

Table 2.5: Activities in which the 20-year-olds had spent most time since leaving school

Main activity since school	Left school before 17 (*n* = 57) %	Left school at 17 (*n* = 191) %	Left school at 18 (*n* = 153) %
Full-time employment	42	31	30
Full-time study	19	58	59
Part-time employment	12	4	4
Apprenticeship	12	5	2
Looked after own child	11	2	2
Other	4	1	2
Part-time study	2	2	2
Travel/holiday	2	1	0
Sickness benefit	2	0	0
Casual job	2	0	2
Unemployed—received benefit	0	1	0
Unemployed—no benefit	0	1	0
Leisure activity	0	1	1
Unpaid/voluntary work	0	1	0
Self-employed/contracting	0	0	0
Looked after family member	0	0	0

Note: N = 401.

As a group, the early school-leavers had a more varied range of main experiences than those who left at 17 or 18. Even though more of those who left at 17 had travelled, it was not their major time use. Just over half of those who left school at 17 or 18 continued to spend most of their time studying, albeit in the different environment of university or other post-school providers. Just under a third shifted to employment. Employment was the paid work they found with organisations and other people: none of the young people spent most of their time between 16 and 20 in self-employment or contracting.

Employment also dominated what the early school-leavers were doing at age 20, as shown in Table 2.6. At age 20, this group also had higher proportions than those who left school later looking after their own child, experiencing unemployment or receiving a sickness benefit. There is little difference now between those who left at 17 and those who left at 18.

Table 2.6: Main activity at age 20

Main activity	Left school before 17 (*n* = 57) %	Left school at 17 (*n* = 191) %	Left school at 18 (*n* = 153) %
Full-time employment	44	28	26
Looking after own child	19	4	3
Full-time study	18	58	63
Part-time employment	18	38	40
Unemployed—receive benefit	12	3	1
Apprenticeship	7	5	3
Part-time study	5	2	6
Sickness benefit	5	0	0
Other	4	3	1
Casual job	2	3	3
Unemployed—no benefit	2	2	2
Leisure activity	2	4	3
Unpaid/voluntary work	2	2	3
Travel/holiday*	0	0	0
Self-employed/contracting	0	2	0
Look after family member	0	1	0
Gap year/time out*	0	0	1

Notes: * We may have low proportions here because those who were undertaking these activities might be among those we could not pin down to take part in the age-20 phase; but it also seems likely that holidays and gap years are more likely just after school, or later, after completion of tertiary qualifications.

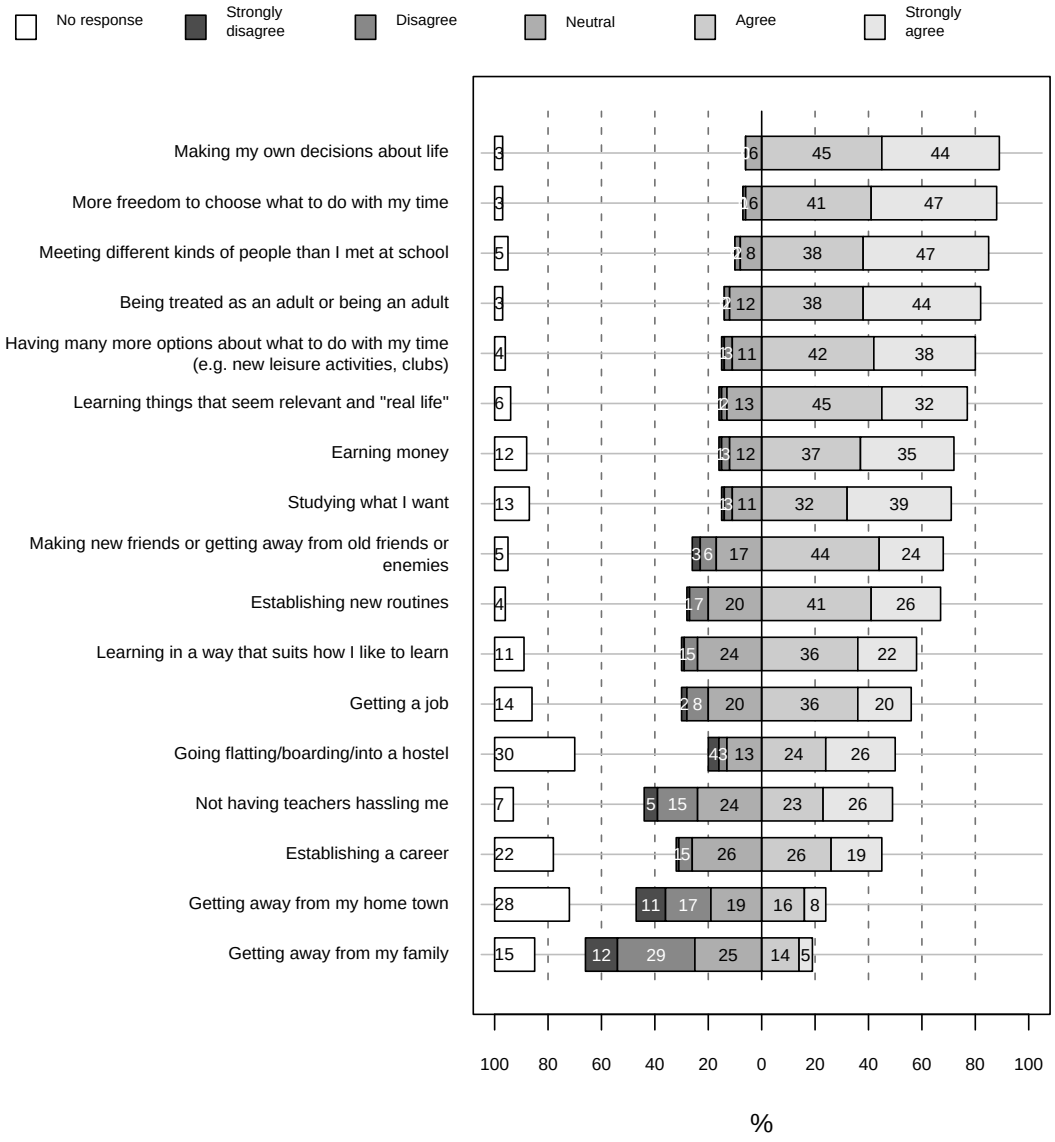
N = 401.

Seventy percent of the early school-leavers said they were happy with what they were doing now, somewhat less than the 80% of later school-leavers. Just under half could not think of anything they would rather be doing, slightly less than for the later school-leavers. Most of the early school-leavers who would rather be doing something else at age 20 wanted to work, sometimes in a different area. Some wanted to study; and some wanted to travel or have a break. They showed higher interest in working than those who left school at a later age, and less interest in travel or a break. Their interest in gaining employment was higher than among the later school-leavers. Money, higher qualifications or skills, and a change in employer attitudes were the main things early school-leavers thought they would need, if they were to change what they were currently doing. A change in employer attitudes and the need for support from family were only mentioned by young people in the early school-leavers group. The latter were somewhat less likely to think they would try to get or change these things than their counterparts who had left school at a later age.

How easy was it to move out from school?

We asked the 20-year-olds a set of items in the self-report instrument about what had been the best things about leaving school, and what had been the hardest things. These were aspects we had also asked about at age 16. Independence in various forms, and new options, were mentioned by most of the young people. Most of these gains were about moving *on* rather than moving *from*, though 49% were pleased not to have "teachers hassling me". Moving on from school can also mean changing living arrangements.

Figure 2.3: Twenty-year-olds' memories of the best things about leaving school

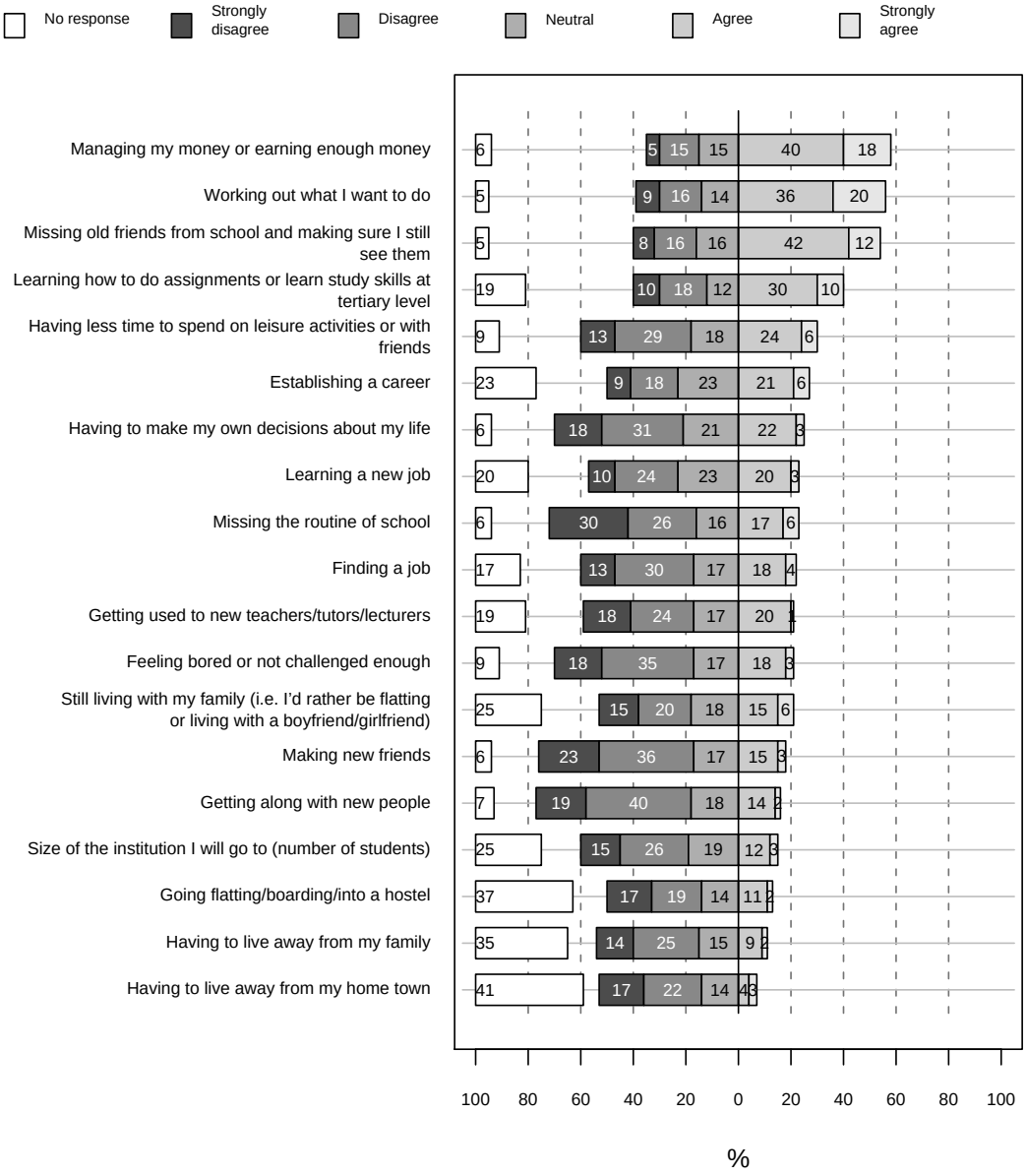


Note: N = 401.

The greater employment orientation of the early school-leavers is evident in their greater mention of getting a job, establishing a career and earning money as the best things about leaving school, than those who left school at 17 or 18.

The good things about moving on from school outweighed the hard things, as seen in the much lower proportions in Figure 2.4. Just over half the young people found it hard to manage their money or earn enough (to enjoy that independence), and to make sure they kept up with friends from school. Fifty-six percent did find it hard to work out what they wanted to do. The range of other things found hard reflects the differences in individual situations that the young people found, or made, for themselves. But few missed the routine of school—most were ready to make decisions for themselves about their day-to-day time use.

Figure 2.4: Twenty-year-olds' memories of the hardest things about leaving school



Note: N = 401.

Early school-leavers did not find any of these things harder than those who left school later. It was among the latter that there were higher proportions who had found it hard to make new friends, get along with new people, learn tertiary study skills or adjust to a bigger institution; and who were missing old friends, living away from their family or home town, having less time to spend with friends or on leisure activities, learning a new job or flatting with other people. Some of these differences no doubt are related to the higher proportions of those currently studying among those who left school later.

Only 11% of the 20-year-olds thought it had been hard for them to make the move from school. Thirty percent gave a neutral view; 37% said it had been easy and 24%, very easy. So at least 61% of the young people had found moving out of the institutional setting of school straightforward.

School-leaving age was unrelated to these memories. There were some differences related to the sorts of things that the young people recalled as being the single hardest thing for them about leaving school. Early school-leavers and those who left at 17 were more likely to mention working out what they wanted to do (but only 12% of each group singled

this out as the hardest thing about the move). The employment orientation of many early school-leavers comes through in the somewhat higher proportions who mentioned finding a job or establishing a career; and the early school-leavers were also somewhat more likely to mention having less time to spend on leisure and friends.

When we asked how the young people felt now about the hardest thing they had found in leaving school, most saw it as something they had adjusted to—some more reflectively than most. Fifty-two percent said they learnt to cope, 24% said they had just accepted it and 19%, that it had been a good learning experience. But 12% said they were still struggling with what they had found hard about leaving school. This was more likely to be the case if what they had found hardest about leaving school was working out what they wanted to do, or managing or earning money.

The 20-year-olds gained some learning from their experience of grappling with the hardest thing about leaving school. Just under half thought they had learnt how to handle particular situations. Learning also occurred in relation to what was important to them as an individual (18%), in relation to relationships (14%), their goals (nine percent) and their strengths (10%) and weaknesses (five percent).

Sources of advice in deciding what to do after school

Family members played the largest role in providing advice that the young people thought had helped them in their decisions about what to do post-school. This makes sense in terms of family knowledge of the young person as an individual—their interests and attitudes. Having knowledge of the young person over a number of dimensions might also account for the somewhat higher showing of teachers and school managers with pastoral roles in the sources of advice identified by the young people, in comparison with those whose roles were focused on career advice. Certainly, the advice that played the largest role came from those who knew the young person already, rather than that provided from tertiary institutions or other future avenues—though these were valued by some of the young people. It may also be the case that the reason why teachers and school managers were mentioned more often is that most of this sample went onto tertiary study, so teachers could provide some related advice, based on their own experience of tertiary study, or linkages between school and tertiary subjects.

However, early school-leavers had fewer sources of advice to help them decide on their pathway from school. They were three times more likely than those who left at 17 or 18 to have had no advice at all. Not only were they less likely to have advice from school sources, but also less likely to have advice on the next steps into adulthood from friends and family. We did not ask if they had sought advice: and given the range of early school-leavers, it may well be that this group was less likely to do so, if they were already clear in their own minds about an alternative to school that was attracting them, such as a particular job or course, or if they simply wanted to exit an environment they disliked.

Table 2.7: Sources of useful advice on decisions on what to do after school by age of leaving school

Source	Left school before 17 (*n* = 57) %	Left school at 17 (*n* = 191) %	Left school at 18 (*n* = 153) %
Family	56	78	76
Friends	23	41	35
Teacher/principal/dean	23	31	35
No-one	21	7	7
School career counsellor/teacher	16	27	27
Information on the Internet	4	22	17
Employer at a job	4	4	3
Training organisation	4	1	1
Other	4	5	5
Higher education staff	2	22	16
Employer at a careers fair/expo	2	1	0
Career counsellor outside school	0	3	3

Note: N = 401.

Specific careers-related experiences derived from broad government policy and specific institutional policies that helped post-school decision making were less mentioned in general—by only 64% of the 20-year-olds—and even less so by the early school-leavers, 49%. The young people would have been thinking back to 2004–7; most would not have experienced the career support policy change that resulted in the CPaBL initiative[18], or the most recent advice to schools, which puts an emphasis on developing career management competencies (Ministry of Education, 2009).

Table 2.8: Careers-related experiences that helped the decision on what to do after school

Experience	Left school before 17 (*n* = 57) %	Left school at 17 (*n* = 191) %	Left school at 18 (*n* = 153) %
Nothing	51	34	33
School subject	18	28	28
Open day at institution	7	19	22
Courses with a work component (eg, STAR, Gateway)	7	3	4
Workplace visit	7	5	5
Other	5	7	9
Unpaid/voluntary work	4	10	13
Careers fair/expo	2	14	14
Developing a career plan	0	2	1

Note: N = 401.

Three-quarters of the 20-year-olds thought it was important or very important for secondary students to get advice on study habits and options, career options, money and time management. Early school-leavers did not seem to place more

[18] Creating Pathways and Building Lives (CPaBL) was a two year initiative in 100 secondary schools nationwide during 2007 and 2008.

store than their peers who had left school later on secondary students getting advice, bar trying out courses or jobs, and money management. Their greater interest in employment rather than study may be behind some of the other differences apparent in Table 2.9, which focuses on the proportions who rated advice as very important for secondary students. However, the distance of time from their school years is also likely to be influencing their views, as suggested by the trend of the most weight being placed on such advice by those who were at school two years or less before our interview.

Table 2.9: Views of the importance of advice for secondary students

Area of study, work, relations and skills	Left school before 17 (*n* = 57) % thinking it very important	Left school at 17 (*n* = 191) % thinking it very important	Left school at 18 (*n* = 153) % thinking it very important	Total (*n* = 401) % thinking it very important
Money management/ budgeting	56	49	45	48
Career options	46	49	48	48
Subject and NCEA options	39	46	49	46
Study options after school	39	47	55	49
Trying out courses/jobs	39	23	31	28
Time management	39	44	51	46
Study habits at school	25	35	40	35
Trying out careers/study fairs/expos	21	18	20	19
Moving to a different town	19	14	19	17
Decision-making strategies	18	14	20	17
Living with others (flatting, boarding, hostel)	18	17	23	19
Study habits after school	16	32	35	31
Relationships	14	7	7	8

Note: N = 401.

Views on the importance of advice for secondary students were unrelated to whether individuals had themselves wanted more guidance on subjects and option choice within their secondary schooling at age 14 or age 16.

How different from their peers are the early school-leavers by the age of 20?

We have shown that there are some differences between the early school-leavers and those who stayed until they were 17 or 18, prior to the decision to leave. These differences are consistent with the decision to leave school when legally able, rather than keep attending until the end of school programmes, or the gaining of a high-level school qualification. While there are indications that quite a few in the early school-leaving group had not gone on to find paths that can keep leading forward, especially through further study, did the differences between the early school-leavers and those who left at age 17 or 18 continue after the decision to leave school?

On the whole, we see convergence rather than (continued) separation of the two groups of school-leavers in terms of relations with family, views of work and career and financial planning. Early school-leavers were less likely to have kept their school friends—though just under half had kept some friends from school. Their closest friends were less likely to be school friends. The early school-leavers group was still more likely than others to engage in risky behaviour

(eg, 33% of this group smoked marijuana quite often or more, cf. nine percent of those who left school later), and to have sex. They were also more likely to be living with partners (25%, cf. seven percent of those who left school at 18), but less likely to be living with friends (four percent, cf. 18% of those who left school at 18). They were more likely to like playing computer games, and less likely to enjoy reading—or to enjoy playing sport for fun. They were less likely to play organised sport, go shopping with friends or take holidays with them. They were less likely to think it important to keep up to date with current events, or to have voted in the 2008 election (58%, cf. 77% of those who left school at 18).

The early school-leavers who had or were studying were less likely to think that they were gaining generic skills, and gave lower ratings to the quality of teaching in their post-school courses. They were no more likely than others to say they needed support for their learning.

While early school-leavers were no more likely than others to say that there were major things they had not done because of financial constraints, they were more likely to mention study and moving from home, and less likely to mention travel, than later school-leavers.

There are no clear patterns related to school-leaving age in terms of experiencing major regrets in what they had done since leaving school. In terms of future goals, the early school-leavers were more likely to mention goals in the domain of family (20%, cf. five percent of those who left school at 18), less likely to mention study and less likely to say they had plans for achieving their goals.

Some differences were also evident in relation to animating values. Early school-leavers were less likely to rate doing well at work and study as very important (33%, cf. 56% of those who left school at 18); similarly with being helpful or kind, having lots of friends (which may reflect the greater incidence of partners in this group) or contributing to a community or cause.

Over the past year, they were twice as likely to have broken up with a partner as those who left school later, more likely to have shifted to live with a different parent or family member, to fight with others in their dwelling, to have been injured, lost their temper, been in a physical fight or in trouble with police. But while there are more of these experiences among the early school-leavers, they are not frequent. In other words, among the early school-leavers, a minority has had these experiences, and this minority is larger than it is among the later school-leavers.

Discussion

School leaving for most of the participants in the age-20 phase of Competent Learners seems to have been a moving *on*, within a journey, either because they had reached the end of the formal school programme, or had a qualification they could use, rather than a moving *from*, intentionally rejecting. Those who left before they turned 16 were the exception. Most of those who left school early appear to have left when they were no longer legally required to be there, or had become unwelcome, or seemingly unable to be accommodated. Though a few of these had gained a qualification they thought would allow them to access employment that attracted them, none of those who left at 15 had gained an NCEA qualification, and only 36% of those who left at 16 had gained NCEA Level 2 or above. They had fewer sources of useful advice on their pathway out of school (though they may have sought advice less than others). Family and teachers or those with pastoral responsibilities in secondary schools were most likely to be the sources of useful advice; they were also the adults who were most likely to have a full picture of a young person's strengths and interests.

Many participants (61%) thought it had been easy or very easy for them to move on from school. Looking back on their leaving school, most of the participants in the age-20 phase of Competent Learners saw gains in independence and in

options. They liked being able to earn money, and have learning that seemed (more) relevant and related to "real life". However, just over half had found it hard to work out what they wanted to do, and to manage their money.

One of the Ministry of Education's six priority outcomes in its 2010–2015 *Statement of Intent* is that "Every young person has the skills and qualifications to contribute to their and New Zealand's future" (Ministry of Education, 2010, p. 17). There are three aspects related to this outcome. One target is that eventually every 15- to 19-year-old would be in education, training or work, with an immediate target to reduce the rate of those not in education, training or work among Māori and Pasifika youth, whose current rates of not being in education, training or work are much higher than for all youth. Another target is an increase in the proportion of students leaving school with NCEA Level 2 or above, again, most immediately among Māori and Pasifika learners. The Ministry of Education actions linked with this focus primarily on the Youth Guarantee, offering a wider choice of options at these ages, and acknowledging that school does not suit all young people. The third target tackles student engagement, with specific mention of tackling truancy and behaviour, and some mention of the link between achievement and engagement: "In order to lift student achievement, we need to keep students engaged and interested in what they are learning at school" (Ministry of Education, 2010, p. 19).

The patterns associated with early school leaving reported in this chapter certainly point to the importance of not just watching out for signs of disengagement some years before the age of 15, but of actively working to provide positive learning environments, that scaffold learning from students' current knowledge and activities, and support their identification of things and activities that will interest them, and invite them to develop further. The early school-leavers were more likely to come from homes with fewer opportunities to afford interests that involved some cost, since most had grown up in low-income homes. Signs of risk that students will leave school too early to gain a school-level qualification are evident in the school environment in low performance levels before secondary school on both cognitive measures, such as literacy and mathematics, but also in the attitudes, the knowledge and skills that support learning and interest in learning, such as curiosity, perseverance, self-management and communication. However, low performance levels on their own are not predictive of early school leaving: it is when they are coupled with lack of engagement, lack of interests or interests that are related to risky behaviour, and experiences of bullying; and with this a vagueness about the future, more interest in "standing out", in how one appears to others, and less awareness of productive paths post-school.

Our data raise some questions about current alternatives to school for those who currently leave school before they turn 16. Although around two-thirds of this group *did* go on to post-school study in their first step away from school, few had gained a qualification by the time they were 20. There is a high rate of noncompletion of courses for those who left school before they were 16. Those who left at 16 fared somewhat better, though most of their study was at the certificate 1–3 level, rather than the higher level which is the target of another of the Ministry of Education's 2010–2015 priority outcomes. While the number of early exemptions is now reduced, the disengagement with school that led to them is likely to be an issue for those young people who must now remain unwillingly in school, making it more difficult for them to gain meaningful qualifications unless this disengagement is addressed.

Most of the early school-leavers (before 17) in this sample had been able to find employment. Employment appeared more appealing than study, though this may be because some post-school study options were limited to those they could access without school qualifications, or only low-level qualifications. Higher proportions of the early school-leavers were mothers. Higher proportions had also had apprenticeships. This group was more likely to experience unemployment, both since they left school and at age 20. None had remained unemployed all the time since they left school, but these were years of low national unemployment rates.

The early school-leavers as a group had somewhat lower rates of happiness with their current situation. What they would like to change is focused on employment, rather than study—suggesting that what they can find in the way of employment, and employers, is more real to them in terms of options than study as a route to something that might be more rewarding. This means that they are highly dependent on their employment for any further skill and knowledge development. If this employment offers limited opportunities in that respect, they are more vulnerable to changes in the employment market. The qualitative component of this study explores this issue in more depth.[19]

Leaving school early also makes it more likely that other aspects of adulthood, such as parenthood and intimacy, are embarked on at an early age. Nineteen percent of the early school-leavers were mothers, and a quarter lived with a partner.

[19] The Canadian Youth in Transition longitudinal study using PISA performance in relation to post-school transitions and situation at age 21 also raises this question in relation to those who went straight from school into employment, with low reading scores. "These students, who scored below the OECD average, may be unlikely to have sufficient proficiency and qualifications to secure stable, rewarding employment. They may also not be likely to reap the full benefits of on-the-job training or future professional development, if these were available to them" (OECD, 2010, p. 60).

3. School qualification levels

What difference does it make to leave school without a school-level qualification? Is there a noticeable difference between those who left without a qualification, and those whose highest school qualification was NCEA Level 1, those whose highest school qualification was NCEA Level 2 or Level 3 or their NQF equivalents in the paths taken from school, and the ways in which adult identity was forming as the young people turned 20? This chapter focuses on the differences we found both related to differences in qualification levels in the post-school activities and paths, and looking back, on experiences, values and competency levels, at earlier ages. There is some overlap with the previous chapter, since early school-leavers were more likely to leave school without a qualification. But there are also some differences apparent when the lens we use to look at the post-school experiences of the study participants is the qualifications they were able to use in the world beyond school.

Costs of leaving school without a qualification

Seven percent (n = 30) of the sample at age 20 had left school without gaining a qualification. Though 57% of these said they were very happy or happy with their current situation, this level of happiness is at a much lower rate than for those with some qualification (73% of those who left school with NCEA Level 2, and 86% of those who left school with NCEA Level 3). Forty percent of the group with no school qualifications had some major regret in what they had done since they left school, cf. 23% of others. Some aspect of study—such as the choices they had made, or difficulty they had experienced—was their main area of regret.

Other aspects that point to some greater difficulty in making a path to a satisfactory adulthood are also evident among the group who left school without a qualification. Forty-three percent were in the highest quartile group of scores on our item asking about experiences of depression at age 20. Forty percent of those who left school without a qualification had had some treatment for a mental health problem during the past year; the same proportion had thought about or attempted suicide in that time. Only 17% of those who left school without a qualification were in the highest quartile group on our optimism measure, cf. 28% of those with NCEA Level 1 or higher.

The group who had left school without a qualification was more likely to:

- be neither studying nor employed (47%, cf. 19% of those with NCEA Level 1, 10% of those with NCEA Level 2 and one percent of those with NCEA Level 3)
- have experienced unemployment since they left school (53%, cf. 28% of those with NCEA Level 1, nine percent of those with NCEA Level 2 and two percent of those with NCEA Level 3)
- have had a child (27%, cf. 13% of those with NCEA Level 1, nine percent of those with NCEA Level 2 and one percent of those with NCEA Level 3)
- often engage in risky behaviour (40%, cf. 17% of those with NCEA Level 1 or higher).

Studying at 20 was just as likely for those who had no school qualification and those who gained only NCEA Level 1; but most of the latter were in employment. Forty percent of those who left school with no qualification would rather be doing something other than what they were currently doing at 20, with employment their main interest rather than study.

Those who left school with a NCEA Level 1 qualification were most likely to want to be doing something different (47%, cf. 42% of those with NCEA Level 2, and 29% of those with NCEA Level 3); with a wider range of preferences for different activities than the interest in employment that is evident in those who left school without a qualification. Employer attitudes were among the obstacles to making a change that were identified by those who left school without a qualification, with some mention also of lack of qualifications and family support.

School qualification levels and social characteristics

As with numerous other studies, we find that qualification levels are linked with family resources: both closer in time to when this sample was tackling NCEA or NQF courses, and further back. Those without a school qualification constituted seven percent of the study age-20 sample, yet they were well overrepresented among those whose family financial situation had been difficult at age 14 (they constituted 23% of this group), or who had had low family income when they were aged near-5. They were also overrepresented among those whose mothers had also left school without a qualification (they constituted 14% of this group), and among Māori or Pasifika (constituting 14% of this group).

Table 3.1: School qualification levels by social characteristics

Qualification → **Social characteristic %** ***Row percentages***	**No completed NCEA/NQF qualification (*n* = 31) 8%**	**NCEA Level 1/ other Level 1 NQF[20] (*n* = 53) 13%**	**NCEA Level 2/ other Level 2 NQF (*n* = 89) 22%**	**NCEA Level 3/ other Level 3 NQF (*n* = 228) 57%**
Gender				
Male (*n* = 196)	7	16	24	54
Female (*n* = 205)	8	11	20	60
Ethnicity				
Māori/Pasifika (*n* = 53)	13	19	42	26
Pākehā/Asian (*n* = 348)	7	12	19	62
Maternal qualification				
None (*n* = 51)	14	24	39	24
Trade/mid-secondary (*n* = 186)	9	15	24	53
Tertiary/senior secondary (*n* = 80)	5	13	21	61
University (*n* = 82)	4	2	10	84
Family financial situation age 14				
Difficult (*n* = 64)	23	20	17	39
Moderate (*n* = 103)	6	17	29	49
Comfortable (*n* = 226)	3	10	20	67
Family income age 5				
Under $30,000 (*n* = 103)	18	23	25	33
$30,000–$60,000 (*n* = 173)	2	13	25	60
$60,001–$80,000 (*n* = 62)	8	10	15	68
$80,001+ (*n* = 63)	3	2	16	79

Notes: Rows may not add to 100 because of missing data and rounding.
N = 401.

[20] NCEA qualification levels given here and used in the report refer to the highest NCEA qualification level gained.

Ethnicity is linked with family resources. In relation to income, for example, only 28% of the Māori and Pasifika young people had been in families whose family finances were comfortable[21] when they were 14, cf. 61% of the Pākehā and Asian young people. Four percent of the Māori and Pasifika young people's mothers had a university qualification, cf. 23% of the Pākehā and Asian young people. Gender differences related to school qualification are slight by comparison with differences in maternal qualification, family income and ethnicity.

NCEA and prior competency levels

How well can NCEA success be predicted from age-5 competency levels? If we look *back*, grouping individuals according to their qualification performance in secondary school, to see how they performed at earlier ages, we get a clear and consistent picture. If we look *forward*, grouping individuals according to their age-5 or age-8 performance, to see how they performed on secondary school qualifications, we see that early performance does not prefigure later performance so consistently: that opportunities to learn and develop *do* make a difference to individuals.

Looking back—performance on NCEA in relation to previous scores on the competency measures

The following figures use first the standardised cognitive composite competency measures from earlier phases of the Competent Learners study, and second, the standardised attitudinal composite competency measures, to compare average competency scores through schooling of those who did not achieve any school qualification with those who achieved NCEA Level 1; those who achieved NCEA Level 2 and those who achieved NCEA Level 3 or equivalent. The NCEA measure used is the Level 1 expected percentile (or ep1; we used the Level 1 measure as most of the young people had at least one credit at that level). We standardised the ep1 scores within our sample, to match the other measures used in the study.

What Figures 3.1 and 3.2 show is that:

- Those who left school with NCEA Level 3 had higher average competency scores than those who left school with lower or no qualification, before they started school; and that the gap widened gradually over time.
- This pattern is evident in relation to both cognitive *and* attitudinal competencies, underlining the study's earlier findings about the importance of interweaving the development of both in children's opportunities to learn, from an early age. Such interweaving of cognitive and attitudinal knowledge and skills is also implicit in the New Zealand Curriculum which came into operation in 2010.
- While those who left school with no qualification tended to have the lowest average competency scores, their *cognitive* competency scores were not statistically different from those who left school with NCEA Level 1 or Level 2. However, they did diverge from those other two groups at age 12, in relation to *attitudinal* competencies. This would indicate that there is a group whose main risk in terms of leaving school without a meaningful qualification is not so much a matter of cognitive performance, but rather a question of the attitudinal dispositions which enable achievement.

[21] See p. 23 for the information included in this variable.

Figure 3.1: Earlier cognitive competency measures and NCEA qualifications

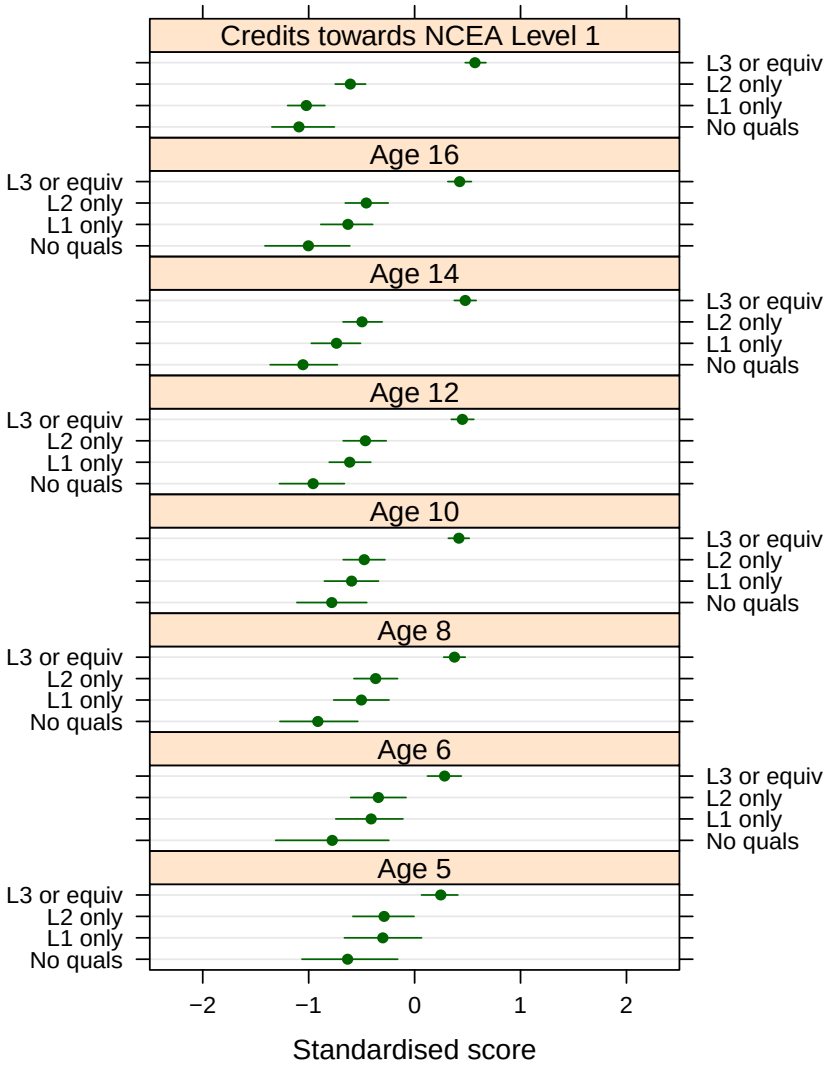
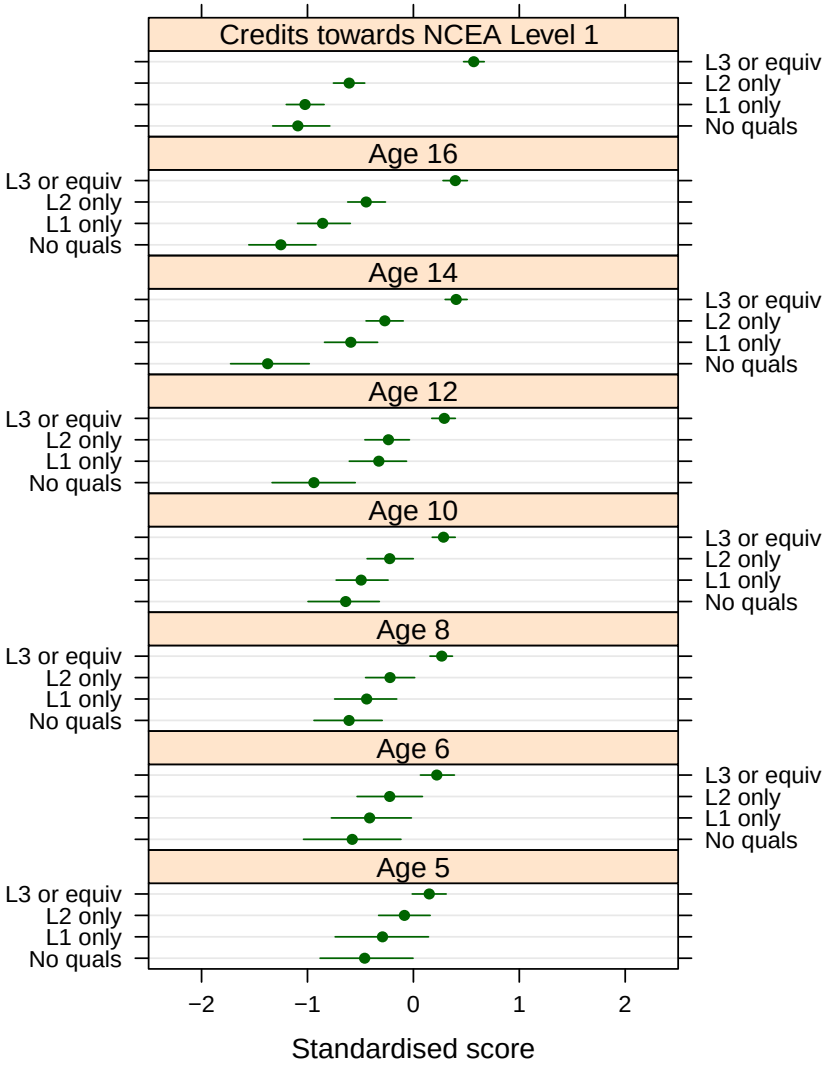


Figure 3.2: Earlier attitudinal competency measures and NCEA qualifications



Looking forward—the links between performance levels at ages 5 and 8 and later school qualifications

Stability of performance over time is more evident for those who started school with high performance on our measures, than for those who started with low performance. Many of those who started school with low levels of performance went on to achieve NCEA Level 2 or Level 3: a heartening finding in terms of the work of schools.

Low performers at ages 5 and 8 and their later school qualifications

Most of those who were in the lowest quartile[22] of performance on our measures of early literacy and numeracy and the composite measures (averaging across their scores) at age 5 went on in fact to gain NCEA Level 2 or Level 3. The gain in performance was not so evident when we look forward from age 8: performance levels appeared to be hardening after the initial school years.

Numeracy and mathematics performance showed somewhat more consistency with later school qualification success than did reading and writing: 70% of those in the lowest quartile of scores on the age-5 early numeracy measure went on to achieve NCEA Level 2 or Level 3, cf. 79% of those in the lowest quartile of scores on the age-5 early literacy measure.

Table 3.2: School qualifications achieved by the lowest quartile on age-5 competency measures

Qualification → **Age-5 competency level—lowest quartile**	**No completed NCEA/NQF qualification**	**NCEA Level 1/ other Level 1 NQF**	**NCEA Level 2/ other Level 2 NQF**	**NCEA Level 3/ other Level 3 NQF**
Row percentages	**8%**	**13%**	**22%**	**57%**
Cognitive composite (*n* = 52)	13	17	27	42
Attitudinal composite (*n* = 54)	11	15	24	50
Early literacy (*n* = 52)	8	13	27	52
Early numeracy (*n* = 54)	11	19	37	33

Note: Rows may not add to 100 because of missing data and rounding.
N = 52–54.

We found that 55% of those in the lowest quartile of scores on the PAT: Mathematics measure at age 8 went on to achieve NCEA Level 2 or Level 3, cf. 69% of those who were in the lowest quartile of scores on the PAT: Reading Comprehension measure, or our writing task at age 8.

[22] We compared the overall performance levels of our age-20 participants with national norms for two measures at ages 8, 10 and 12 to check that the lowest quartile in this study had low performance levels. Because the national norms do not divide scores into quartiles, we cannot undertake an exact match. The participants' average score on the Ravens Standard Progressive Matrices matched the average score for this sample at all three ages. Average scores on the Burt word reading scale were 7 to 10 points higher for our sample over these ages, probably reflecting the higher cultural capital available to our sample, which includes more young people from families with above average incomes and higher levels of maternal qualification than this age group nationally. The average age-8 score on the Ravens Standard Progressive Matrices for the lowest quartile on our cognitive composite score (averaging scores across reading comprehension, the Burt, writing, the Standard Progressive Matrices and mathematics) was 33, with a range from 7 to 58), and the average age-8 score on the Matrices for the highest quartile was 62, with a range from 32 to 80). The average Burt score at age 8 for the lowest quartile on the cognitive composite was 34, with a range from 1 to 66; and for the highest quartile, 66, ranging from 42 to 92.

Table 3.3: School qualifications achieved by the lowest quartile on age-8 competency measures

Qualification → **Age-8 competency level—lowest quartile**	**No completed NCEA/NQF qualification**	**NCEA Level 1/other Level 1 NQF**	**NCEA Level 2 /other Level 2 NQF**	**NCEA Level 3 /other Level 3 NQF**
Row percentages	**87%**	**13%**	**22%**	**57%**
Cognitive composite (*n* = 100)	17	24	32	27
Attitudinal composite (*n* = 100)	14	23	28	35
Burt word recognition (*n* = 104)[23]	11	16	33	40
PAT: Reading Comprehension (*n* = 81)	12	19	33	36
Writing (*n* = 101)	11	20	35	35
PAT: Mathematics (*n* = 98)	17	28	31	24
Ravens Standard Progressive Matrices (*n* = 100)	12	22	30	35

Notes: Rows may not add to 100 because of missing data and rounding.
N = 81–104.

What differences were apparent between those with low performance levels at age 8[24] who later gained NCEA qualifications, and those who did not? We used the cognitive composite to compare those in the lowest quartile group at age 8 who later left school without a qualification, with NCEA Level 1, Level 2 or Level 3, in relation to the core set of variables we are using in this report, including social characteristics, and age-14 and age-16 experiences, relationships and views, and their competency levels between ages 10 and 14. The numbers in each of these four groups are low (they range from 17 to 32), so some apparent differences did not reach statistical significance (at the $p = 0.5$ or below level). We do report some trends where it is likely that the differences would be statistically significant with larger numbers.

The early low performers on the cognitive composite who went on to gain NCEA Level 3 appeared to move upwards in their performance particularly between ages 8 and 10 in relation to reading comprehension and mathematics, and between ages 10 and 12 in relation to writing. Their attitudinal competency levels were generally higher by age 8. For example, at age 8 only 10% of those who had low levels on the cognitive composite and who went on to gain NCEA Level 3 were in the lowest quartile for the competency Perseverance, cf. 45% of those who went on to gain NCEA Level 2, 50% of those who gained NCEA Level 1 and 63% of those who did not gain a qualification. Communication (expressive and receptive language) was the one competency where the differences were not marked. By age 14, teachers' overall judgements were putting 78% of each of the groups who would leave without a qualification or NCEA Level 1 into the lowest quartile of achievement, 46% of those who would leave with NCEA Level 2 and 14% of those who would leave with NCEA Level 3.

Not surprisingly, the differences we found in terms of experiences and resources in relation to later different qualification achievement are consistent with the differences in experiences and resources that we report in relation to qualification levels for the whole Competent Learners @ 20 group.

Particularly evident here are the roles of family income and parental interests, indicating differences in experiences and values—probably aspirations. The data we have on school experiences suggest that these were often not engaging for the students whose earlier performance had been low and remained low.

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[23] The lowest quartile scores at age 8 on the Burt ranged from 1 to 37, with a mean of 30; and on the Ravens Standard Progressive Matrices ranged from 7 to 37, with a mean of 28.

[24] We were not able to carry out this analysis in relation to the age-5 lowest quartile, because the numbers in those quartiles (52–54) were too small to divide further by later qualification levels.

Social characteristics (and resources)

Family income played a role. Those among the low performers at age 8 who later left school without a qualification were most likely in this group to have been in low-income homes when they were aged near-5 and at age 16. Few of those among the low performers at age 8 who later gained NCEA Level 3 had mothers who themselves had no qualification; but otherwise maternal qualification levels were not linked to how well these low performers at age 8 did with NCEA.

Engagement in school

At age 14, those among these low performers at age 8 who would leave school without a qualification were more likely to show low levels of engagement and confidence in school, and report the lowest levels on our measure of positive learning environments in English, science and mathematics (compulsory subjects at that age). Those who would later go on to gain NCEA Level 3 were most likely to give high ratings to their learning environments in these three subjects. However, those who went on to do well on NCEA were just as likely as those who did not achieve Level 1 to have difficulty with disruption in the learning environment. At age 16, 71% of those who left school without a qualification expressed low levels of satisfaction with their school subject mix (some were looking back, having left school), as did 35% of those who left school with NCEA Level 1, but only 11% of those who left with NCEA Level 2 or Level 3.

Those who would go on to achieve NCEA Level 3 were more likely to have high levels of gauging their learning progress by reference to intrinsic signs (such as gains in understanding) and to have high school motivation levels. Motivation levels at age 14 show a linear trend: 86% of those who were early low performers who later left school without a qualification had low motivation levels, as did 52% of those who left with NCEA Level 1, 29% of those who left with NCEA Level 2 and 20% of those who left with NCEA Level 3. Most of the low performers at age 8 who left school without a qualification were early school-leavers, cf. three percent of their peers from this set who gained NCEA Level 2 or Level 3. There is an indication that the latter found it easier to settle into secondary school.

Leisure and interests

There were nonsignificant trends suggesting that those among the low performers at age 8 who went on to achieve NCEA Level 3 were most likely to express the values we described as “anchored and achieving” at age 14, and to have experienced no bullying or bully themselves between ages 8–14. Those who did not achieve a qualification were more likely not to enjoy reading over that period, and at age 14, most likely to report either no strong leisure interests or a strong interest in computer games, and more likely to report some adverse events in their life. There are interesting differences in parents’ self-reported leisure interests, with a split between the children who gained NCEA Level 2 or Level 3, and those who did not. The former were more likely to have parents who came into the cluster of leisure use that we summarised as “literate and involved”, and less likely to come into the two clusters we summarised as “mixed interests” or “TV/few interests”.

Relationships with family and friends

Family relationships tended to be better for those among the group of early low performers who later achieved NCEA Level 3; and having friends with risky behaviour more likely for those who left school without a qualification or NCEA Level 1. Those who would leave school without NCEA were least likely to have high scores on our measure of experiences of praise for achievement, and with those who would leave school with NCEA Level 1 as their highest qualification most likely to experience rejection in their relationships.

Progress among the early low performers and the attitudinal composite

We found a broadly similar picture, but with some interesting new links, when we looked at the lowest quartile on the attitudinal composite at age 8, in terms of their later secondary school qualifications. Only the new links are reported here. Maternal qualification levels seemed more important: those from this group of initial low performers on the attitudinal composite who went on to achieve NCEA Level 3 were much more likely to have mothers with a university

qualification (40%). Their scores for mathematics, reading comprehension, vocabulary and writing were higher than their peers from this group at age 8 and beyond. Mathematics and reading comprehension scores were similar among those from this group who went on to achieve NCEA Level 2, Level 1 or no qualification. Writing scores, however, were higher by age 12 for those who went on to achieve NCEA Level 2 than for those who went on to achieve NCEA Level 1 or no qualification. Vocabulary scores were higher by age 12 among those who gained NCEA Level 2 or Level 1 than among those who left school with no qualification. Those who later left school without a qualification were most likely to have lowest scores on some, but not all, individual attitudinal competency measures from age 8: they were lowest in relation to perseverance and social skills with adults. However, the differences were not so clear-cut at age 12, indicating that the learning opportunities and experiences between ages 12–16 were particularly important for early low performance in the attitudinal competencies.

Those in this set of low performers at age 8 in terms of attitudes who did not gain NCEA Level 2 or Level 3 were most likely to have risky behaviour at that age. This is different in relation to those who had low cognitive performance at age 8, where the differences related primarily to having friends with risky behaviour, rather than undertaking the risky behaviour oneself. Rejection experiences, and experiences of being praised for achievement, were much the same for all low performers. Having a positive learning environment at age 14 did seem to support gaining NCEA Level 3 among this group, though more so for English and mathematics than science.

High performers at ages 5 and 8 and their later qualifications

We found greater stability among the initial high performers in terms of their later school qualification level. Almost 80% of those who were in the highest quartile of our competency measures at age 5 achieved NCEA Level 3; and few left school with no qualification or only NCEA Level 1.

Early literacy was just as good a long-term predictor of NCEA Level 3 achievement as early numeracy, though fewer who started school in the top quartile on our measure of early numeracy than those who started school in the top quartile on our measure of early literacy failed to get a qualification or only NCEA Level 1 (six percent, cf. 14%).

Table 3.4: School qualifications achieved by the highest quartile on age-5 competency measures

Qualification → **Age-5 competency level—highest quartile**	**No completed NCEA/NQF qualification**	**NCEA Level 1/ other Level 1 NQF**	**NCEA Level 2/ other Level 2 NQF**	**NCEA Level 3/ other Level 3 NQF**
Row percentages	**8%**	**13%**	**22%**	**57%**
Cognitive composite (*n* = 52)	4	8	10	79
Attitudinal composite (*n* = 54)	4	13	17	67
Early literacy (*n* = 52)	4	10	10	77
Early numeracy (*n* = 54)	2	4	17	78

Notes: Rows may not add to 100 because of missing data and rounding.
N = 52– 54.

The age-8 highest quartile performers on our reading comprehension and vocabulary measures were somewhat more likely than the age-5 highest quartile performers to achieve NCEA Level 2 or Level 3—but there was little difference in relation to the mathematics measure.

Table 3.5: School qualifications achieved by the highest quartile on age-8 competency measures

Qualification → Age-8 competency level—highest quartile	No completed NCEA/NQF qualification	NCEA Level 1/other Level 1 NQF	NCEA Level 2 /other Level 2 NQF	NCEA Level 3 /other Level 3 NQF
Row percentages	**8%**	**13%**	**22%**	**57%**
Cognitive composite (*n* = 100)	2	6	11	81
Attitudinal composite (*n* = 100)	3	8	18	72
Burt word recognition (*n* = 99)	3	7	15	75
PAT: Reading Comprehension (*n* = 104)	2	6	13	80
Writing (*n* = 99)	5	11	11	73
PAT: Mathematics (*n* = 102)	1	7	15	78
Ravens Standard Progressive Matrices (*n* = 100)	4	4	11	81

Notes: Rows may not add to 100 because of missing data and rounding.
N = 99–104.

Cognitive composite—differences related to later NCEA achievement

Because so few of this set did not achieve NCEA Level 2 or Level 3, we could not divide it into each of the four qualification levels as we could do for those who had been in the lowest quartile group at age 8. We have therefore compared those who went on to achieve NCEA Level 3 among this group of high performers on the cognitive composite at age 8 (*n* = 81), and those who did not (*n* = 19). The latter group therefore is more varied than one would like: it puts together those who left with NCEA Level 2, which provides a good platform for post-school options, and those who left with less and were not so well-equipped as they left school; it may be that the differences we found are more related to one of these subgroups than the others. The differences found are for the most part indicative only rather than statistically significant, but they make sense in terms of other linkages and patterns found in the study which are statistically significant.

The overall picture comparing those amongst this set of high performers at age 8 who went on to gain NCEA Level 3, and those who did not, indicates some slippage for the latter in some aspects of cognitive work, followed and then accompanied by, slippage in the attitudes that support achievement, and signs of more attention being paid to things outside school than engagement in school. The slippage in *cognitive* scores for the early high performers who did not go on to gain NCEA Level 3 was not dramatic: few fell to the lowest quartile of performance on the cognitive competencies. But fewer remained in the top quartile, and most were in the two middle quartiles. However, the slippage on the attitudinal competencies was marked. Around a third of this early high-performing group who did not gain NCEA Level 3 were scoring in the lowest quartile of performance on the *attitudinal* competencies by age 14, where only 11% had done so at age 8 (the same proportion as those who later gained NCEA Level 3 in this group).

Differences in terms of individual competency scores

There were no differences between those who gained NCEA Level 3 and those who did not in terms of mathematics and Burt vocabulary scores ages 8–12. Those who did not go on to gain NCEA Level 3 had lower reading comprehension and logical problem-solving scores ages 8–16, lower writing scores at ages 12 and 14 and lower attitudinal scores from age 12. By age 14, only a few of those who had been high performers at age 8 but who would not match that high performance by gaining NCEA Level 3 were appearing in the top quartile of our attitudinal measures, in contrast to just under half of those who would gain NCEA Level 3. They were generally showing lower levels of perseverance, communication, social skills and self-management. In teachers' overall judgement of how well

they were doing at age 14, almost a third were in the lowest quartile, cf. one percent of those who went on to gain NCEA Level 3.

Differences in terms of social resources

Those who gained NCEA Level 3 among this group of high performers were more likely to have university-qualified mothers, and less likely to be from families on low incomes (both when they were young, at age near-5, and when they were 16).

Differences in school experiences and engagement

Just under two-thirds of this early high-performing group who did not achieve NCEA Level 3 left before they were aged 17. Only 36% were in traditional subject clusters, cf. 88% of those of the early high-performing group who achieved NCEA Level 3. The group who did not gain NCEA Level 3 were somewhat less satisfied with their subject mix at age 16, and were less engaged in school. Engagement levels at age 14 were in fact similar, but the group who did not gain NCEA Level 3 were less confident in the school environment, and less likely to gauge their progress at school by intrinsic signs such as gains in understanding. Somewhat fewer had high motivation levels at age 14. They were less likely to report positive learning environments across English, mathematics and science, but there was no difference between the two groups in terms of whether they experienced disruptive classes.

Differences in leisure interests and relationships

Interestingly, in contrast to the main patterns for the study, there were few clear differences here. Those who did not carry through their initial high performance into NCEA Level 3 were no less likely to enjoy reading, no more involved in bullying over the period age 8 to age 14 or more likely to experience adverse events, to have friends with risky behaviour or nonsupportive families at age 14. Their values were similar. Somewhat fewer of this group were in the "balanced" interests cluster (with reading, arts and sports each figuring in what they enjoyed doing), and somewhat more in the "creative" interests cluster (with enjoyment of making things figuring more than for others at age 14). By age 16, while the group who did not gain NCEA Level 3 showed more risky behaviour and higher levels of family pressure, it was the group who achieved NCEA Level 3 who were more likely to have experienced adverse events, and to have friends with risky behaviour. Somewhat more of the latter group had values that we summarised as wanting a "satisfying life", and somewhat more of the former had values that indicated they wanted to "stand out" in some way. They were somewhat less likely to have high levels of experiencing praise and achievement.

Attitudinal composite—differences related to later NCEA achievement

What about the links between performing in the top quartile on our attitudinal composite at age 8 and achievement of NCEA Level 3? Of the 100 in this set, 72 went on to gain NCEA Level 3. Perhaps the first point to be made is that only 45% of the top quartile on our attitudinal composite at age 8 were also in the top quartile on the cognitive composite at age 8. More of those who later achieved NCEA Level 3 were in both top quartiles: 51%, cf. 29% of those who scored highly on attitudes at age 8, but did not gain NCEA Level 3. Performance for both groups in this set on the *cognitive* measures remained stable between the ages of 8 to 16. Scores on the *attitudinal* measures started to diverge from age 12, decreasing for those who would not go on to gain NCEA Level 3. By age 14, their teachers were seeing only 18% achieving highly overall, cf. 47% of those who later gained NCEA Level 3 among this set.

Differences in terms of social resources

Those who gained NCEA Level 3 among this group of high performers on the attitudinal composite were less likely to be from low-income homes, and a higher proportion had university-qualified mothers.

Differences in school experiences and engagement

Thirty-nine percent of this early high-performing group on the attitudinal composite who did not achieve NCEA Level 3 left school before they were aged 17. Thirty percent were in the subject cluster that we summarised as "vocational

orientation" at age 16, cf. four percent of those who gained NCEA Level 3.[25] The group who did not gain NCEA Level 3 were less satisfied with their subject mix at age 16, and less engaged in school, though their engagement levels at age 14 had been similar, as had their motivation levels. However, this group had been less confident in the school environment, and less likely to gauge their progress at school by intrinsic signs such as gains in understanding. They were less likely to rate their mathematics and science learning environments positively, though they gave much the same ratings for their English classes.

Differences in leisure interests and relationships

More of the group who did not gain NCEA Level 3 were either interested in computer games, or had no particular interests, and fewer were in the cluster characterised mainly by involvement in sports. Fewer of their parents came into the "literate and involved" cluster for their own leisure interests. They were more likely to have friends with risky behaviour, but no more likely themselves to engage in such behaviour. They had higher levels of experiences of rejection. Relations with parents seemed less supportive than for those who would later gain NCEA Level 3. Twice as many as those who did not gain NCEA Level 3 among this initially high-performing set had reported involvement in bullying in at least two of the three study phases between ages 10—14 (43%, cf. 22%). This last difference is particularly interesting, and may signal a vulnerability for this group, which appeared well equipped with the kinds of attitudes that are useful for school achievement. (Analysis in this area would ideally hold in one frame attitudinal and cognitive competency levels, to see how these interrelate with bullying; but we lack sufficient numbers in this group to do so.)

Age-14 experiences and relationships linked to qualification level

We return now to looking at the whole sample. Those who left school without a qualification showed some marked differences in relation to those who left with a qualification. In this set of comparisons, there was also a gradient evident, with those whose highest qualification was NCEA Level 2 coming between those who achieved NCEA Level 1 and Level 3.

Those who left school without a qualification were more likely to have low scores on our age-14 measures relating to school engagement, family support and friendship; and on reading enjoyment and measures of leisure activities that might support ongoing learning.

Differences that were particularly marked for those who left school without a qualification were:

- age-14 engagement in school (63% of those who left without a qualification were in the lowest quartile on this measure, cf. 28% of those who left with NCEA Level 1, and 15% of those who left with NCEA Level 3[26]
- less positive learning environments in English, mathematics and science reported
- having attended four or more schools by age 14 (43% had done so, cf. 32% of those who left with NCEA Level 1, and 15% of those with NCEA Level 3)
- seeing themselves staying at school until the end of Year 13 (53%, cf. 75% of those who achieved NCEA Level 1, and 92% of those who achieved NCEA Level 3)
- higher levels of parent–child friction (50% in the highest quartile group on this measure, cf. 28% of those who left with NCEA Level 1, and 18% of those who left with NCEA Level 3)

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[25] These subject clusters are described in Appendix B, pp. 201–232.

[26] However, those who did not gain a qualification were just as likely as others to settle quickly into secondary school.

- enjoying reading between the ages of 8 to 14 (13% enjoyed reading at every one of the four study phases in this period, cf. 36% of those who left with NCEA Level 1, and 51% of those who left with NCEA Level 3)
- having either no particular leisure interests, or being focused on electronic games (50%, cf. 32% of those who left with NCEA Level 1, and 15% of those who left with NCEA Level 3)[27]
- having a supportive family (50% in the lowest quartile group on this measure, cf. 36% of those who left with NCEA Level 1, and 21% of those who left with NCEA Level 3)
- having good family communication (47% in the lowest quartile group on this measure, cf. 32% of those who left with NCEA Level 1, and 18% of those who left with NCEA Level 3) and, to a lesser extent
- having solid friendships (37% in the lowest quartile group on this measure, cf. 26% of those who left with NCEA Level 1, and 19% of those who left with NCEA Level 3).

However, on some of the family and friends measures the scores of those who left with a Level 1 qualification were much the same as those who left school without a qualification. They had similar low scores for our measure of inclusive family, and similar high scores for our measures of family pressure, friends with risky behaviour; their own risky behaviour, experience of adverse events over the previous year and involvement in bullying in at least one of the three study phases (ages 10, 12 and 14). Put together with the similarity in average scores for the cognitive and attitudinal competencies for the two groups, this suggests that particular changes in individual lives, outside of school—a friend with risky behaviour moving away, for example, or parents finding ways to relate to their child in ways that do not escalate concerns—can make a real difference to whether individuals with similar low levels of cognitive and attitudinal competencies achieve NCEA Level 1, or do not.

Two-thirds of those who left school without achieving a qualification had low motivation levels, cf. 53% of those who achieved NCEA Level 1, and 17% of those who achieved NCEA Level 3. The higher the NCEA level achieved, the more likely it was that students had high motivation levels, and would see themselves staying to Year 13. What is particularly interesting about this gradient trend is that there are not distinct differences in cognitive competency levels at ages 14 and 16 between those who ended up achieving NCEA Level 1, and those who left with NCEA Level 2. But between these two groups, there are differences in their attitudinal competency levels evident by age 14. Coupled with the trends evident in motivation, this underlines the importance of attending to these attitudinal dimensions as well as the cognitive.

There is one measure where those who achieved NCEA Level 3 stood out at ages 14 and 16 from those who achieved a lower NCEA level, or no qualification. Those who left school with NCEA Level 3 had higher levels of using internal markers such as gauging their learning by whether they had worked hard to solve a problem, whether they were doing their very best and if what they had learnt make sense.

Age-16 experiences and relationships linked to qualification level

Only 37% of those who left school without a qualification were still at school at the age-16 phase of the Competent Learners study. When we look at age-16 students' views of school and learning, there is greater similarity between the views of the group who left with no qualification—but who were still at school—and those who left with NCEA Level 1 or Level 2. The group that stands out is those who achieved NCEA Level 3: they have higher scores for their attitude

[27] There was also a difference in parental interests: with only 17% of the parents of those who left without a qualification categorised in the "literate and involved" cluster, cf. 28%of the parents of those who left with NCEA Level 1, and 53 percent of the parents of those who left with NCEA Level 3.

to learning, their approach to NCEA work, their absorption in learning, engagement in school and confidence in the school environment. At age 16 those who left school with no qualification had been less likely to voice satisfaction with their subject mix. Yet they were not more likely than others to wish they had had more guidance on their subject choice. Few of those who left school with no qualification, or with NCEA Level 1, were taking subject mixes that fitted our categories of the traditional academic arts or sciences. Those who achieved NCEA Level 2 were more likely to be in the subject clusters we described as vocational and contextual (the latter a mix of traditional mathematics and English, with a range of subjects, including some vocational ones), with slightly fewer taking the traditional academic science subjects; and much fewer taking the traditional arts subjects.

School attendance rates[28] also showed clear differences between those who achieved different levels of NCEA: attendance was reported by teachers as good or very good for 87% of those who achieved NCEA Level 3, 67% of those who achieved NCEA Level 2 and 44% of those who achieved NCEA Level 1. Expectations of staying at school until the end of Year 13 also showed differences: around half of those who left with no qualification or NCEA Level 1 thought they would stay until then, cf. 70% achieving NCEA Level 2, and 94% of those achieving NCEA Level 3. Fifty-six percent of those who left school with no qualification thought they would have a break when they left school—but eight percent were aiming for university, as were 34% who achieved NCEA Level 1, 48% who achieved NCEA Level 2 and 76% of those who achieved NCEA Level 3.

Those who left school with no qualification were most likely to have experienced adverse events over the past year, but most of the differences apparent when looking at age-16 measures of experiences outside school, family life and relations with friends, were between those who had no qualification or NCEA Level 1, and those who had NCEA Level 2 or Level 3. The former group was more likely to have risky behaviour, and friends with risky behaviour, and less likely to have extending friendships or inclusive family relationships. However, at age 16 this group no longer had lower scores on our measures of family communication, support and pressure, perhaps because parents felt they could make little difference to decisions regarding school or employment. At this age, certainly, parents of those who left school without a qualification were less inclined to think they were generally happy—38% thought they were, cf. 82% of parents of those who left with NCEA Level 2, and 92% of those who left with NCEA Level 3. There was a similar trend in relation to parent views that their child took an optimistic view of life. The young people who left school without a qualification were less likely than others to express values that we classified as "aspirational", and more likely to express those we classified as "standing out".[29]

Most of the students had some paid work when they were 16; frequency of work each week was unrelated to how well they did in NCEA.

Post-school study

We use two different sources of data: interview and self-report data from 2009, and the Ministry of Education administrative databases, covering course completion up until the end of 2008.

The interview data show some clear differences in post-school study experiences up to age 20, related to school qualification. Those with NCEA Level 1 or Level 2 were least likely to undertake some study, with most able to gain employment without further study. While 40% of those who left school without a qualification did gain a post-school

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28 We have this age-16 data from teachers for 340 of the age-20 sample.

29 We used cluster analysis. The "aspirational" cluster included high scores for values such as wanting to do well at school and sport, get a good education, have an important job, influence other people, be with family and have good health. The "standing out" cluster included high scores for values such as wanting to look good/cool, have money and friends, have an important job and do well at sport.

qualification, this was also the group most likely to leave a course before completion, indicating that reliance on post-school study, in a different setting, was not enough on its own to "make up" for lost ground at school. Changing a main course of study was most likely to occur for those with NCEA Level 3 (at university).

Table 3.6: Study experiences—qualifications, course changes and course noncompletion as in 2009

School qualification →	No completed NCEA/NQF qualification (*n* = 31) %	NCEA Level 1/other Level 1 NQF (*n* = 53) %	NCEA Level 2 /other Level 2 NQF (*n* = 89) %	NCEA Level 3 /other Level 3 NQF (*n* = 228) %	Total (*n* = 401) %
No further study (self-report)	17	30	30	7	16
Left course without completion	37	13	12	6	11
Changed main course of study	3	0	8	25	16
Gained qualification	40	38	29	8	19
Studying without yet gaining qualification; quitting or changing main course	10	17	24	54	39

Notes: Columns may not add to 100 because of missing data and rounding.
N = 401.

Table 3.7 adds to this picture using Ministry of Education administrative data, showing the kind of qualifications gained since school and the highest study level of the sample as at the end of 2008. As individual young people could have studied at more than one level (eg, for a certificate as well as a degree, or at both graduate and undergraduate level), we prioritised their level of study, giving highest priority to the highest level of study, and within that, higher priority to qualifications that were achieved than to those that were attempted (and most likely not completed); and higher priority to studying for a qualification (even if noncompleted), over nonformal study. The information in the rows of the table is drawn from several of the Ministry databases: completed qualifications (both at school and at tertiary level); tertiary enrolments; and industry and targeted training enrolments. The order in the table runs from the lowest priority to the highest.

All but 12% of the sample had undertaken some study since they left school, according to the Ministry of Education administrative data. Not undertaking further study was most likely for those who left school with NCEA Level 2, followed by NCEA Level 1. These groups were also more likely to undertake nonformal study, which does not lead to a qualification, such as bridging courses which allow access to formal study. But though those who had left school without a qualification had generally spent longer away from school (83% left school before the age of 17, cf. 30% of those who gained NCEA Level 1, 13% of those who gained NCEA Level 2 and two percent of those who gained NCEA Level 3), they were less likely to have gained some qualification by age 20, or to remain in study.

Table 3.7: 2008 school-level qualifications and highest post-school study levels by the end of 2008

Qualification →	No completed NCEA/NQF qualification (*n* = 31) %	NCEA Level 1/ other Level 1 NQF (*n* = 53) %	NCEA Level 2 / other Level 2 NQF (*n* = 89) %	NCEA Level 3 / other Level 3 NQF (*n* = 228) %	Total (*n* = 401) %
No further study	7	17	25	7	12
Targeted training	3	0	0	0	0.25
Nonformal study (study that does not provide credit toward a qualification, eg, community education course, bridging course)	10	23	18	4	10
Attempted some study (without qualification)	33	9	7	2	6
Studying Level 1–3 certificate	17	23	7	2	7
Studying Level 4 certificate	10	2	6	1	3
Studying Level 5–7 diploma	0	0	0	1	0.5
Studying at undergraduate level	0	2	20	72	46
Studying at graduate level	0	0	0	3	2
Has Level 1–3 certificate	20	15	9	4	8
Has Level 4 certificate	0	6	7	2	3
Has diploma Level 5–7	0	4	2	1	2
Has bachelor's degree	0	0	0	0.5	0.25

Notes: Columns may not add to 100 because of missing data and rounding.
N = 401.

Targeted training funded by the Tertiary Education Commission (TEC) was an important source of post-school learning for those who left with no qualification: 37% had undertaken this type of training, as had 23% of those with NCEA Level 1, 10% of those with NCEA Level 2 and one person who had gained NCEA Level 3.[30]

Ministry of Education data on industry training show that it was undertaken by 13% of those who left school with no qualification, 23% of those who left with NCEA Level 1, 13% of those who left with NCEA Level 2 and seven percent of those who left with NCEA Level 3.

Interview answers indicate similar rates of non-university study at age 20 for those without a school qualification, and those with either NCEA Level 1 or Level 2: just under 20%. Twenty-two percent of those with NCEA Level 2 were studying at university, which is where 78% of those with NCEA Level 3 were to be found.

[30] Data from a Ministry of Education database on participation in this training.

Lifelong learning dispositions

Level of school qualification was also related to some differences on our three measures of lifelong learning dispositions. These measures are described in detail in Chapter 10.

- *Disciplined learning*: Almost half of those who left school without a qualification were in the lowest quartile group of performance on our measure of Disciplined learning. But the differences in levels on this measure were not apparent at the top level: the proportion of those who left school without a qualification who scored in the top quartile for this factor was much the same as those who had gained an NCEA qualification.
- *Strategic learning*: Those who left school with NCEA Level 3 were most likely to be in the top quartile of performance on this measure (30%, cf. 17% of those who left with NCEA Level 1, or no qualification).
- *Need support to learn*: Thirty-seven percent of those who left school without a qualification were in the top quartile of performance on this measure, cf. 22% of those who left school with NCEA Level 3.

Modelling of school qualification achievement

As described in the introduction, we undertook some modelling to see which of the variables that cross-tabulation showed had associations with school qualification performance was most strongly related, or predictive of that performance. For example, would motivation levels at age 14, or performance on our cognitive competency measures, have a stronger association than maternal qualification levels?

We ran into the problem of the strong interrelationships between the variables that we also described in the introduction, so the picture we get from the multivariate modelling is less rich than we get from putting together a composite from the cross-tabulations. But there are a number of variables that the models showed had a linkage with school qualification levels, over and above prior competency levels, that are of interest, and further modelling of these showed some interesting patterns in relation to different levels of performance on our measures of the cognitive and attitudinal competencies.

Here we summarise the results of the statistical models we undertook. The results of these models are reported more fully in Appendix C.

The importance of goals

We included one age-20 variable in the models of achieving literacy and numeracy standards. This is the young people's views of the importance of goals, because we had used it in the modelling (or predicting) of levels of lifelong learning dispositions, and found that views of how important goals were in life remained a significant factor. We decided to include it in these models because it seems likely that views of goals were likely to be stable, though we are aware that qualification achievement, or not, could alter perceptions of the importance of goals.

It is a pity we did not ask this question in earlier phases of the study. However, we did ask teachers to rate how well a student *meets any goals that they set themselves* at age 14 (when it formed one of the items in the Perseverance competency), and at age 16 (when it went into the factor we described as the Focused and responsible competency); and we asked parents at age 16 the same item (when it went into the factor we described as Parent view of student self-efficacy). This is not an identical item, and it does not tell us whether setting goals was part of the young person's behaviour at earlier ages. Nonetheless, we did find that teacher and parent views on whether the individual at a younger age had met goals that were self-set was related to secondary school qualification levels, with those who were rated in the lowest quartile on teacher ratings more likely than others to leave school without a qualification, or NCEA Level 1 only, and less likely than others to achieve NCEA Level 3. Parent ratings of their child's goal-oriented behaviour were

not so clearly tied to NCEA achievement: while the same trends were evident in relation to leaving school without a qualification, or achieving NCEA Level 3, there was no difference in relation to gaining NCEA Level 1 as the highest qualification.

Young people who thought goals were very important were almost five times as likely to achieve NCEA Level 1 literacy and numeracy standards, and young people who thought goals were important were almost four times as likely to achieve those standards, than those who thought goals were not important. A similar trend is evident in relation to achieving UE literacy and numeracy standards.

Achievement of NCEA Level 1 literacy and numeracy

Overall, 92% of the young people in the Competent Learners age-20 phase gained NCEA Level 1 literacy and numeracy, so it is no surprise that the model predicted that young people who had reasonable attendance when they were 16, and would place high importance on goals would do so. Only those with the lowest level of cognitive competency, particularly when coupled with low levels of attitudinal competency, had about a 10 to 20% chance of not achieving NCEA Level 1 literacy and numeracy. But those with low cognitive or attitudinal levels who had good attendance and who thought goals were very important were highly likely to gain NCEA Level 1 literacy and numeracy.

Achievement of UE literacy and numeracy

Gaining UE literacy and numeracy was almost assured for those who had high levels of cognitive and attitudinal competency, as well as good school attendance, and who saw goals as important, or very important. Gaining UE literacy and numeracy was extremely unlikely for those with low levels of cognitive competency, particularly if they also had low levels of attitudinal competency, did not see goals as important and did not attend school regularly. The best outcomes for those with low levels of cognitive competency (a probability of about a third) was where the young person had extremely high levels of attitudinal competency, saw goals as very important and attended school regularly. For young people with moderate levels of cognitive competency, the probability of achieving UE literacy and numeracy increased rapidly with increasing levels of attitudinal competency, and with school attendance levels and seeing goals as important.

NCEA achievement

Our models of the factors that would best predict different levels of NCEA achievement were limited to those who were still at school at age 16. Views about the importance of goals did not emerge in these models as a key factor. What did show most clearly was the number of schools attended, the school subject cluster at age 16 and age-16 student engagement in school. We grouped these key variables together to show how they interacted.

Some interesting results emerged. Whatever their level of cognitive competency at age 14, students who had low student engagement levels, poor attendance and low attitudinal competency levels, who had attended five or more schools by age 14, were very unlikely to gain NCEA Level 2 or Level 3. However, among this group, the chances of those with high cognitive competency levels gaining NCEA Level 3 increased (though they were still low) if they took traditional academic subjects, than if their subject cluster was vocational or contextual. Subject cluster was also material in a similar way to the achievement of NCEA Level 3 for those who had moderate levels of student engagement, good school attendance, moderate levels of attitudinal competencies and who had attended four schools by the age of 14. Level of cognitive competencies was also a material predictor.

A similar pattern is evident among the group who showed high levels of student engagement, high levels of attitudinal competencies, good levels of school attendance and who had attended three or fewer schools by age 14, though this group is least likely to achieve only NCEA Level 1 or no qualification. There are also differences: a student who had

moderate or high performance on our cognitive competency measure would be more likely to gain NCEA Level 3 if they also had high levels of student engagement, and attitudinal competencies. Subject mix was immaterial to these students gaining NCEA Level 3—they were as likely to do this if they were in the "vocational" group as they were if they were taking "traditional" forms of subjects.

Looking back on leaving school

Just under half those who left school with no qualification or NCEA Level 1 left because they had reached the age when schooling was no longer compulsory. This compares with 11% of those who gained NCEA Level 2, and only one of the 228 who gained NCEA Level 3. Thus compulsion rather than motivation or engagement was the prime driver in retention in secondary school for those who gained no or few qualifications. Similar proportions of those who left school with no qualification and those who left with NCEA Level 1 left school when they had a training option available to them (14%), or because they were encouraged to leave or were expelled (eight percent). Those who left with no qualification were less likely than those who gained NCEA Level 1 to leave because they had finished Year 13.

Qualification level was unrelated to reported memories of how easy it had been to move from school to what the young people were doing now. However, qualification level was related to sources of useful advice in relation to the decision on what to do after school. Perhaps because those who left with no qualification stayed only because they had to, they were more likely to say they had had no useful advice[31] (26%, cf. 17% of those with NCEA Level 1, nine percent of those with NCEA Level 2 and four percent of those with NCEA Level 3). They also made less mention of advice from family and friends. Those who left with NCEA Level 2 or Level 3 usually mentioned two or more useful sources of advice, and those who left with NCEA Level 3 were most likely to mention subject teachers, and higher educational staff, which is consistent in the general continuity of their passage from secondary to tertiary study. The higher the NCEA level achieved, the less negative were the memories of interactions with teachers: 39% of those who left with NCEA Level 3 said that one of the best things about leaving school was not having teachers hassle them, cf. 56% of those who left school with NCEA Level 2, 64% of those who left school with NCEA Level 1 and 77% of those who left school without a qualification.

Only four percent of the sample mentioned courses with a work component as an experience that helped their decision on what to do after school, and these were most likely to have helped those who left with NCEA Level 1. Visiting a workplace was most mentioned by those who left without a qualification. We cannot tell from our data how these experiences were helpful. One can imagine that courses with a work component might spur someone on to get their NCEA Level 1 in order to access particular employment opportunities; but workplace visits might have shown options that did not need a qualification.

Those who gained NCEA Level 3—who tended to have had more sources of useful advice for their path from school than others—were the ones who placed most importance on study advice for secondary students, particularly in relation to study habits and options. Those who left school without a qualification generally did not see such as advice as unimportant, but they were more inclined to rate it as important rather than very important. Conversely, those who had gained NCEA Level 3 were less inclined to rate trying out career options, courses or jobs as very important. Money management and relationship advice were most important for those who had left school without a qualification They were the group most likely to already be living in partnerships, and most of their occupations were not well paid.

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[31] We did not also ask whose advice they had sought.

Employment and study between school and age 20

Although the majority of the sample's experiences post-school include both employment and study, those who had gained NCEA Level 3 (who had also had the shortest time since they left school), were most likely to have spent most of their time on study, and least likely to have spent it on full-time employment (18%, cf. around half for others). Only 13% of those who left school without a qualification reported study as their main activity since they left school, as did 21% of those with NCEA Level 1 and 28% of those with NCEA Level 2.

Unlike the patterns of useful advice in relation to the general path from school, friends and family were as much a source of useful advice in relation to post-school study for those who left school without a qualification and those who left with a qualification. Those who left school with NCEA Level 3 were most likely to mention higher education staff, and least likely to mention training organisations or noninstitutional careers counsellors, as sources of useful advice on study. Information on the Internet was also most likely to be mentioned by the school-leavers with NCEA Level 3, along with those who left school with NCEA Level 2.

Those who had left school without a qualification or who left with NCEA Level 1 were just as likely as those who left with NCEA Level 2 or Level 3 to think that they would need to undertake study more than once in their adult life, but they also voiced more uncertainty about the need for further study. While those who left school without a qualification or with NCEA Level 1 were just as likely as those who left with NCEA Level 2 or Level 3 to have definite goals for the next three years, the goals were less likely to include study, and more likely to be focused on work. Family and leisure activities also featured for those who left school with no qualification.

Among those employed at age 20, those without school qualification, or with NCEA Level 1 or Level 2 were more likely to be working in trades and technical work than those with NCEA Level 3, and those with no school qualification, to have semiskilled and unskilled work (29% of those employed in this group, cf. 13% of those with NCEA Level 1, six percent of those with NCEA Level 2 and five percent of those with NCEA Level 3). Half of those without a school qualification had had their jobs for less than a year, as had 45% of those with NCEA Level 1, cf. 36% of those with NCEA Level 2 or Level 3.

Since those with NCEA Level 3 were mostly studying, only 19% of those in this group who were employed worked full-time, cf. 61% of those with NCEA Level 2, and 77% of those with NCEA Level 1 or no school qualification.

Only seven percent of those who left school without a qualification said their current job was what they had planned when they left school, cf. 35% of those who had a school-level qualification. The former group was also less likely to say previous experience had shown them the job would be suitable, and more likely to say they took their current job because they needed money (any job would have done). Those without a school qualification were just as likely as others to say a reason had been because the experience would be useful or interesting. Indeed, 93% of those who left school without a qualification said they were learning lots of new skills in their work, cf. 66% of those with NCEA Level 1, 54% of those with NCEA Level 2 and 44% of those with NCEA Level 3. Those who left school without a qualification tended to be more optimistic about the opportunities for progression. But they were also more neutral than others about their job enjoyment and less positive about their pay and conditions. Overall, only 29% of those who left school without a qualification said they were doing what they wanted to be doing, cf. 55% of those with NCEA Level 1, 45% of those with NCEA Level 2 and 46% of those with NCEA Level 3.

Views that it was *very* important to do well at work or study followed a linear pattern, increasing from 26% of those who had left school without a qualification to 60% of those who had left with NCEA Level 3.

While employment appears to be more important than study to those who left school without a qualification, and does provide them with opportunities to learn, it does not seem to be always fulfilling for this group, or to have given them a

clear path inviting further effort, a path that provides some of the confidence and perhaps identity that is most evident with those who left school with NCEA Level 3, and whose path from school has been the most straightforward, and connected positively to school experiences and support.

Age-20 experiences and relationships

Enjoyment of reading was highest among those with NCEA Level 3. There were trends indicating that enjoyment of sport (both for fun and competitive), and the performing arts was lowest among those with no school qualification. Enjoyment of electronic games was higher for the latter and those with NCEA Level 1 than for those with NCEA Level 2 or Level 3. Keeping up with current events was less important for the group who left school with no qualification. Only 48% had voted in the 2008 general election.

Those who had left school with no qualification were somewhat ahead of others in forming ongoing adult relationships. A quarter of those who had no school qualification were living with a partner; around 14% of those with NCEA Level 1 or Level 2 did so, and eight percent of those with NCEA Level 3. Half had lived with this partner for two years or longer. Sexual experience was highest among those who left school without a qualification. Risk behaviours were also higher, including smoking marijuana or taking other drugs, driving when drunk or being a passenger with a drunk driver, and physical fighting. Those who left school without a qualification were more likely to have had trouble with the police. Boredom was more likely to be experienced quite often or more by those with no school qualification or those with NCEA Level 1.

Accidents or injuries were most likely among those who left school without a qualification (23% said they had experienced an accident or injury quite often or lots of times, cf. 11% of those with NCEA Level 1, and five percent of those with NCEA Level 3). Those with NCEA Level 3 were least likely to have experienced the death of a friend. Those who had left school without a qualification were less likely to have solid friendships (48%, cf. 71% of those with NCEA Level 1 or higher). Those who had left school with NCEA Level 3 were most likely to feel they were in control of their financial situation. A quarter of those who left school without a qualification felt their finances were out of their control most or all of the time, cf. eight percent of those who gained at least NCEA Level 1.

Discussion

The data from the age-20 phase of this study show that having school qualifications is worthwhile. Leaving school without a qualification was not only associated with greater likelihood of unemployment in the post-school years, but also with more major regrets, less happiness and optimism and more experience of depression and mental ill health. Post-school study did not improve the opportunities for these young people: instead, they had higher rates of not completing courses they undertook, indicating their need for support with learning, and building habits of learning that they had not built in school. Simply changing the environment of learning without addressing these needs would not suffice.

Our longitudinal data show some precursors to the likelihood of leaving school without a qualification. They also show that leaving school without a qualification is not an inevitable endpoint of these precursors. There are some important patterns evident in our analysis of previous competency scores, and in our analysis of how young people were forming their identity in early and mid-adolescence: what mattered to them, how they experienced school, the support they had.

Precursors to school qualification achievement—competency levels

Looking *backward*, using the four levels of school qualification as our unit of analysis (comparing those who did not achieve NCEA, those who achieved NCEA Level 1, Level 2 or Level 3), we found:

- Continuity of performance over time is strongest for those with earlier high performance. Those who achieved NCEA Level 3 had higher scores than others, on the study's cognitive measures (literacy [reading comprehension, vocabulary, writing], mathematics and logical problem solving) from the time they started school. After their first year at school, they also had higher scores than others on the study's attitudinal measures (perseverance, communication, social skills, curiosity and self-management).
- There was little difference in performance on the cognitive measures between those who had left school without a qualification and those who left with NCEA Level 1, or Level 2. It was levels of performance on the *attitudinal* competencies that appeared to make the difference in gaining a qualification, and gaining the more useful NCEA Level 2 rather than NCEA Level 1, or nothing.

Looking *forward,* using low and high performance on the competency measures as our unit of analysis, we found that early low performance often does *not* lead to difficulty gaining a school qualification. What teachers and parents do, their interaction with students and the opportunities they provide children and early adolescents, do matter. The first three years of school are particularly important.

- Most of those with early low performance at age near-5 went on to gain NCEA Level 2 or Level 3.
- Low performance at age 8 may be more of a signal of later difficulty gaining NCEA Level 2 or Level 3—but still 59% of those in the lowest quartile on the cognitive composite at age 8 did so, as did 63% of those in the lowest quartile on the attitudinal composite at age 8.
- Mathematics performance shows more consistency with later performance than does reading or writing for the group of early low performers at age 8. The difference between mathematics and reading or writing performance is somewhat less marked for the group of early high performers at age 8.
- The low performers at age 8 on the cognitive measures who went on to gain NCEA Level 2 or Level 3 started to make progress before they reached secondary school and were showing higher performance on the attitudinal measures from age 8. Supporting their ongoing progress appears to have been experiences of reading enjoyment, interests outside school, absence of involvement in bullying, an absence of friends who had risky behaviour, acceptance by their peers and reasonable or high family income levels. The data we have on school experiences at age 14 show them more positive about their learning environments, more engaged in learning, making more use of intrinsic evidence of progress in their learning and more confident in the school environment; overall, their motivation levels were higher.
- The quality of learning opportunities and experiences was particularly important for those who had had low levels of attitudinal competency at age 8, if they were to go on and achieve NCEA Level 2 or Level 3.
- There seemed to be two patterns among those who were initially high performing at age 8 but did not go on to gain NCEA Level 3. Those who had had high performance on the cognitive competencies showed lower performance from primary school on the cognitive measures, and from age 12, on the attitudinal measures. They were less confident in the school environment at 14, less likely to use intrinsic evidence of progress in their learning, were less positive about their learning environments and were less satisfied with their subject mix at 16. There were some signs of more risky behaviour, but on the whole, not great differences in use of leisure time. Among those who had had high performance at age 8 on the attitudinal competencies, there was more indication of difficulty with peers.

Implications for policy and practice

There are two major implications for current policy and practice from these links between previous competency levels and secondary school qualification achievement, from the links we found in the modelling between qualification

achievement and the importance given to having goals; and the kinds of interests outside school and values that are linked with qualification achievement.

1. The barriers to achieving NCEA Level 2 or the NQF equivalent are mainly attitudinal, not cognitive.[32] To improve the proportion of students who gain NCEA Level 2, a current government objective, will mean paying attention to ensure we do engage students in their learning, from an early age, and pay as much attention to developing their attitudinal competencies as we do to their development of literacy and numeracy. The New Zealand Curriculum provides a framework which supports this policy and practice attention, in its focus on development of the key competencies. In previous phases of this study, we have shown that engagement in learning is related to learning opportunities that are framed to develop both cognitive and key competencies at the same time. These can be provided both in and out of school.
2. Gaining NCEA Level 2 or Level 3 does seem to indicate gains for the young person: the achievement of a desired goal, the exercise of skills and knowledge and attitudes together. These qualifications are not just of use to others as signals of performance that allow "sorting" of candidates for employment or, as post-school study options tighten, post-school study. Post-school study and initial employment for those who left school with no qualification do not seem able to make up for many in this group what was not well formed by the time they left school, and provide a secure platform for the development of a satisfying adult identity.

The OECD Thematic Review of the Transition from Initial Education to Working Life identified six aspects of successful systems:

- a healthy economy
- well-organised pathways connecting initial education with work and further study
- widespread opportunities to combine workplace experience with education
- tightly knit safety nets for those at risk
- good information and guidance
- effective institutions and processes (OECD, 2003, pp. 12–13).

The first aspect affects all the young people in this study, though in 2009 the recession had not had a major impact on their employment. The second aspect is most clearly evident for this sample in the pathways from school of those who went to university equipped with NCEA Level 3. From school, they could bring with them a greater confidence in learning, and higher levels of the skills and attitudes to learning that would support their learning in a new setting—a setting on which their school teachers could give them useful advice. But for those who left without a qualification, and to a lesser extent, those who left with only NCEA Level 1, the well-organised pathways, opportunities to provide workplace experience with education, tightly knit safety nets, good information and guidance and effective institutions and processes were not evident.

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[32] Snow, Porche, Tabors, and Ross Harris (2007) report a similar pattern in the Home–School Study of Language and Literacy Development, which followed children from low-income homes in the United States from age 3 (n = 83) to grade 12 (n = 47), with some students with high motivation and family support doing much better than their literacy scores alone would have predicted, while others with high literacy scores dropped out of school after becoming disengaged with school in their middle school years. Cunha, Heckman, Lochner, and Masterov's (2006) review of 153 empirical studies of skills formation emphasised the importance of noncognitive skills, given that they contributed to achievement levels, risk behaviour and wage levels.

Pathways into adulthood & initial adult platforms

4. Pathways from school, and age-20 main activity

Young people leave school at different ages, taking different lengths of time to start forming their own adulthood through further study, employment, relationships and activities. Pathways[33] from school into adulthood are varied, and not easily summarised. Using just four categories (work, university, college, high school) at each of their three two-yearly phases of data collection, the Canadian Youth in Transition study (OECD, 2010), with some 30,000 participants, found 48 pathways from school to further education and work as it followed students from school at age 15 to age 21. As many have noted, formal study and employment are also often combined rather than experienced as distinct phases of development. This combination was already occurring while the Competent Learners @ 20 participants were in school, when two-thirds of those who were at school at age 16 had paid work.

We found it simplest to focus on the main activity at age 20 as a unit of analysis to give us insight into the different pathways from school into early adulthood. At age 20, study was the main activity for 63% of the sample, many of whom also had employment (51% of those studying worked part-time, 10% worked full-time). Employment was the main activity for 28%, none of whom were studying, and nine percent were neither studying nor employed. The last category consists of those who were currently unemployed or receiving a sickness benefit (69% of this group), or looking after their child (31% of this group).

These categories used here do not describe classes of people. Their usefulness is that they do link with differences in the path taken from school, and current opportunities, which are to some degree shaped by that path, but not totally or certainly. In this chapter, we look at aspects of previous resources and support, competency development and school experiences that show linkages with these three categories, appearing to contribute to what a particular young person was doing at age 20. In Chapters 2 and 3 we focused on some of these data through the lens of school-associated markers: school-leaving age and school qualification. Now our lens is the young people's main activity as they form their own path into adulthood. There is some overlap in what we report, since there are interrelationships between these school-associated markers and age-20 main activity.

In this chapter, we provide some comparisons between each of the three groups we found. The following chapters in this section provide a more detailed look at, first, experiences of post-school study, followed by experiences of employment and then a closer look at those who had experienced unemployment since they left school, and those who had emphasised another pathway or marker of adulthood—motherhood.

Pathways from school

Table 4.1 shows the reasons the young people gave for their decision to leave school when they did, comparing across the three groups of those who were currently studying, employed or neither studying nor employed. The majority of those studying at age 20 had completed Year 13: they had stayed to the end of formal schooling provision. School

[33] Higgins, Vaughan, Phillips, and Dalziel (2008, pp. 7–8) note the term "pathways" is widely used in looking at the linkages between education and employment, with some using it to refer to formal policy pathways (the step to university after achieving NCEA Level 3 is perhaps the closest to this meaning); we use the term much as do Higgins et al., to refer to what young people (have to) construct themselves, through both formal and informal means.

seems to have offered less to those who were employed at age 20—only 54% of this group stayed to the end of formal schooling provision, and even less to those who were neither employed nor studying—though 31% of the latter group *did* stay to the end of formal schooling (half those in this group who thought they might do so at age 16).

Table 4.1: Reasons for leaving school

Reason	Studying at 20 (*n* = 251) %	Employed at 20 (*n* = 114) %	Neither studying nor employed (*n* = 36) %
Completed Year 13	88	54	31
Could leave legally (includes boredom, lack of enjoyment)	6	23	22
Went into training/education	2	9	8
Got the school qualification I needed for what I wanted to do	3	4	11
I was encouraged/had to leave (eg, expelled)	0.4	3	14
I had a child/was pregnant	0	1	11
Financial reasons	0.4	1.8	0
Family reasons	0	0	3
Other	3	8	8

Note: N = 401.

Those who were in the neither studying nor employed category at age 20 were overrepresented among those who did not want to stay at school and had reached the legal age when they could leave, those who were pregnant, those whose families were experiencing difficulty and those who were expelled or encouraged by the school to leave. But they were also overrepresented among those who thought they had the qualification they needed to do what they wanted to do.

Looking back from age 20, the actual move away from school seemed easiest for those who were currently employed or studying: 61% of the former said it had been easy or very easy, as did 58% of the latter, cf. 47% of the neither studying nor employed group. In Chapter 2 we described the young people's retrospective views of the best and hardest things about leaving school (see Figures 2.3 and 2.4). Do we see any differences in answers when we use the lens of the young people's main activity at age 20? Views of the best things about leaving school were generally similar. Students at 20 were most likely to report studying what they wanted, and least likely to report not having teachers hassling them, or earning money. But there were some quite marked differences between the three groups in views about what had been hardest about leaving school, as shown in Table 4.2.[34] Note particularly the higher proportions of the neither studying nor employed group who found difficulty in relation to employment, who experienced boredom or lack of challenge once they were out on their own, and the low proportion of this group who had had no difficulty working out what they wanted to do. Just over half the students recalled difficulty learning how to study in the tertiary environment. A quarter of the (solely) employed struck problems with boredom and lack of challenge when they left school.

[34] Items related to friendships, family and time for leisure activities showed similar patterns across the groups; they are not included in the table.

Table 4.2: Hardest things about leaving school by age-20 main activity

Hard thing	Studying at 20 (*n* = 251) %	Employed at 20 (*n* = 114) %	Neither studying nor employed (*n* = 36) %
Establishing a career	20	34	50
Finding a job	18	23	47
Feeling bored/not challenged	16	25	39
Having to make own decisions about life	26	18	36
Learning a new job	17	33	28
Learning to do assignments/study skills	53	18	19
Working out what I wanted to do—not a difficulty	31	17	11
Getting used to new teachers	27	12	8

Note: N = 401.

Differences in main activity at age 20 generally showed no links with how the young people responded to what they had found the hardest things about leaving school. However, one link was that those who were studying at 20 were most likely to say that dealing with the hardest thing about leaving school had taught them life skills (53%, cf. 39% of those employed, and 28% of those neither studying nor employed). Perhaps, since tertiary students were (still) engaged in learning as their main formal activity, learning provided a "natural" frame for thinking about their passage through life.

Sources of useful advice on post-school decisions

As we noted in Chapter 2, family are *the* major source of useful advice on decisions about the route to take after school. Table 4.3 shows that the 20-year-olds who were employed made less mention of school sources than those who were studying or neither studying nor employed. Those studying were most likely to mention information on the Internet, and higher education staff. Those who were neither studying nor employed were about as likely as those who were studying to mention school sources, but least likely to mention family.

Table 4.3: Sources of useful advice on decisions on what to do after school by age-20 main activity

Source	Studying at 20 (*n* = 251) %	Employed at 20 (*n* = 114) %	Neither studying nor employed (*n* = 36) %
Family	74	80	61
Friends	38	34	31
Teacher/principal/dean	38	15	33
School career counsellor/teacher	28	18	33
Information on the Internet	22	11	8
Higher education staff	21	11	6
No-one	6	12	14
Other	6	4	6
Career counsellor outside school	4	0	0
Employer at a job	3	4	6
Employer at a careers fair/expo	1	1	1
Training organisation	0.4	2	3

Note: N = 401.

We also asked the young adults to recall careers-related advice that helped them make their decision on what to do post-school. Table 4.4 shows that a significant minority—close to half of those who were currently employed or neither studying nor employed—could not recall anything like this that had helped their decision. Those whose age-20 activity was studying seemed most likely to have benefited from specific programmes focused on raising awareness of study or employment options, as well as being able to make (direct) connections with their school work through subject connections. Young people who were neither studying nor employed at 20 were more likely to mention workplace visits and courses with a work component, probably because they were the ones most likely to have been offered these.

Table 4.4: Careers-related experiences that helped the decision on what to do after school—patterns related to age-20 activity

Experience	Studying at 20 (*n* = 251) %	Employed at 20 (*n* = 114) %	Neither studying nor employed (*n* = 36) %
Nothing	31	45	44
School subject	31	19	19
Open day at institution	23	13	6
Careers fair/expo	12	14	8
Unpaid/voluntary work	11	8	8
Other	9	4	3
Workplace visit	6	2	11
Courses with a work component (eg, STAR, Gateway)	3	3	17
Developing a career plan	0.4	2	3

Note: N = 401.

Views on the advice that secondary students needed showed some variation related to age-20 activity. Those who were neither studying nor employed were most likely to think it was important or very important to try out courses or jobs (97%, cf. 70% of those studying, and 81% of those employed), and to go to careers/study fairs or expos, of which they had least experience (81%, cf. 50% of those studying, and 61% of those employed). The group who were neither studying nor employed was also more keen that secondary students get advice on decision-making strategies, and advice about living arrangements.

Breadth and continuity in activities since leaving school

How were activities since school related to the main activity at age 20? Table 4.5 shows that few had had experiences that were limited to their current main activity in the two to five years since they left school. Those who were currently employed were least likely to have undertaken some post-school study. Unemployment was most likely to have been experienced by those who were currently neither employed nor studying; this group also contained almost all the mothers.

Table 4.5: Activities since leaving school in relation to age-20 activity

Activity since school	Studying at 20 (*n* = 251) %	Employed at 20 (*n* = 114) %	Neither studying nor employed (*n* = 36) %
Full-time study	91	44	64
Part-time employment	75	49	42
Full-time employment	55	94	72
Travel	28	21	8
Time out/gap year	17	15	19
Part-time study	12	7	14
Other	9	3	3
Apprenticeship	8	7	8
Leisure activity	7	6	6
Sickness benefit	0.4	1	11
Unpaid work experience//voluntary work	4	8	7
Casual job	4	6	7
Looked after own child	2	5	44
Unemployed—no benefit[35]	2	4	19
Unemployed—received benefit	0.4	4	44
Self-employed/contracting	0	2	0
Looked after family member	0	1	1

Note: N = 401.

We asked some additional questions of those who reported having had time out or a gap year.[36] Such time usually involved paid work (76%). Thirty-nine percent had travelled, 14% had visited family or friends, 11% had pursued a

[35] Some of this unemployment would have occurred before the young people turned 18 and were eligible for an unemployment benefit; much is likely to have been short term. The companion qualitative report for this phase, *Tracks to Adulthood*, (Patterson 2011) shows young people framing periods of unemployment as periods of job seeking or "between jobs", indicating that they were reluctant to think of themselves as "unemployed", given employment's prime role in their sense of themselves as independent, as adults.

sport or leisure activity and five percent had undertaken volunteer work. Those who were studying at age 20 who had taken time out were more likely to have enjoyed their time out than others—and more likely to have travelled. Enjoyment of the gap year/time out was highest (almost 100%) for those who had travelled or undertaken voluntary work, whereas 28% of those who had undertaken employment in their time out had not enjoyed that experience.

We asked the young people to identify among all the activities they reported since they had left school, the activity that was their *main* activity over that time. Table 4.6 shows continuity between that main activity and the main activity at age 20 was evident for around three-quarters of those who were currently studying, or currently employed. The most varied pattern is for those who were currently neither studying nor employed. This group contains 10 of the 12 whose main activity between school and age 20 was looking after their child, and the few whose main activity over that period was unemployment or sickness benefit receipt.

Table 4.6: Main activity since leaving school in relation to age-20 activity

Main activity since school	Studying at 20 (*n* = 251) %	Employed at 20 (*n* = 114) %	Neither studying nor employed (*n* = 36) %
Full-time study	76	11	19
Part-time employment	4	6	8
Full-time employment	12	74	36
Travel/holiday	0.4	1	0
Part-time study	3	1	0
Other	1	2	6
Apprenticeship	6	2	6
Leisure activity	1	0	0
Sickness benefit	0	0	1
Time out/gap year	0.4	1	0
Unpaid/voluntary work	0.4	0	0
Casual job	0	4	0
Looked after own child	0.4	1	28
Unemployed—no benefit	0	0	3
Unemployed—received benefit	0	0	3
Self-employed/contracting	0	0	0
Looked after family member	0	0	0

Note: N = 401.

Three-quarters of those who were neither studying nor employed at age 20 had experienced unemployment since they were 16, cf. three percent of the students, and nine percent of the employed. Forty-four percent of the neither studying nor employed group had had children, cf. one percent of the students, and five percent of the employed.

[36] Young people who reported that they took time out or a gap year were not limited to those who were currently studying, but included some from each of the three groups of the currently studying, employed or neither studying nor employed.

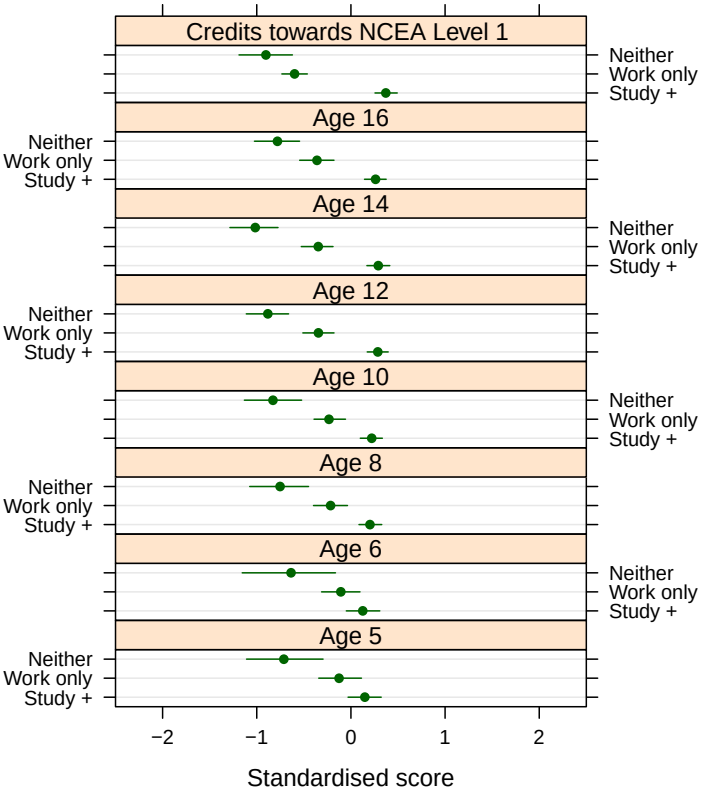
Social characteristics in relation to main activity at age 20

Those studying at age 20 were most likely to have university-educated mothers. Only five percent of this group had mothers with no school qualification, cf. 24% of those who were either employed at 20, or neither studying nor employed. Students were also least likely to have come from low-income homes. The family income patterns over the years (we looked at age-5 and age-16 family income levels, the patterns of family income levels between ages 8–14 and the family's financial situation at 14) were much the same for those who were employed or neither studying nor employed. Māori or Pasifika 20-year-olds were less likely to be studying, and more likely to be employed than Pākehā or Asian 20-year-olds in the sample. Females were overrepresented in the neither studying nor employed group, reflecting the high proportion in this group who were looking after their own child.

Earlier differences in competency development

When we look retrospectively at the cognitive competency levels of these three groups, those who were neither studying nor employed at 20 had consistently lower average scores from age near-5. Figure 4.1 shows a divergence between the average cognitive competency scores of those who were studying and those who were fully employed at 20 from age 8.

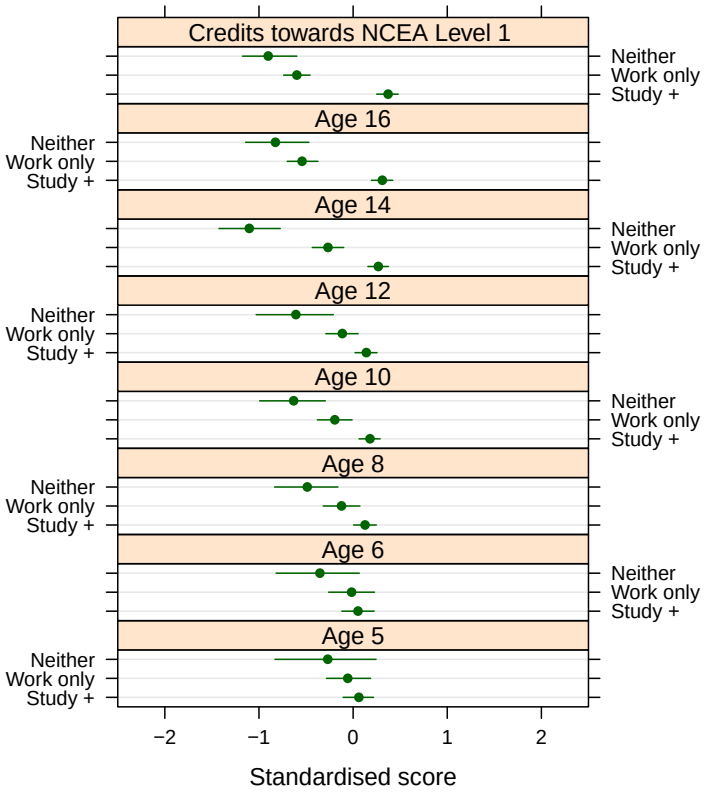
Figure 4.1: Main age-20 activity and previous cognitive competency composite levels



Note: N = 401.

Figure 4.2 shows a similar pattern in relation to the attitudinal composite scores. Here the divergence in scores for those who were neither employed nor studying is not evident until age 6, after their first year of school. There is also a convergence at age 16 of this group's attitudinal scores with the scores of those who were employed at age 20, suggesting that it was more likely for those in both groups to be finding school of less interest to them than those who went on to further study.

Figure 4.2: Main age-20 activity and previous attitudinal competency composite levels



Note: N = 401.

Prospective analysis of whether different school-leaving ages were related to differences in earlier competency levels found little relationship until age 12. But prospective analysis, using as our unit of analysis the quartile groups on our competency measures, to see how members of different quartile groups belonged to the three groups of current activity at age 20, showed differences emerging much earlier, for all our measures. Tables 4.7 and 4.8 illustrate this. Table 4.7 gives the proportion of the lowest quartile group at age 8 for three of the cognitive competencies, and the attitudinal composite who went on to be studying, employed or neither at age 20, with a comparison of the proportion for the whole sample. There is underrepresentation of those whose scores were in the lowest quartile at age 8 amongst those who were studying at age 20, particularly in relation to mathematics. Correspondingly, there is overrepresentation of those who were low performers at age 8 among those who were later employed at age 20, or neither studying nor employed. So it is more likely that those who had low performance at age 8 would not find themselves among the students at age 20, but not inevitable—around half were studying.

Table 4.7: Age-8 lowest quartile competency performance by age-20 activity

Competency performance—lowest quartile	**Studying at 20**	**Employed at 20**	**Neither studying nor employed**
	(*n* = 251)	**(*n* = 114)**	**(*n* = 36)**
Row percentages	**63%**	**28%**	**9%**
Reading comprehension (*n* = 81)	54	31	15
Maths (*n* = 98)	38	44	18
Logical problem solving (*n* = 100)	48	35	17
Attitudinal composite (*n* = 100)	52	33	15

Note: N = 401.

Those who had been in the highest quartile of our cognitive measures at age 8 were overrepresented among those who were studying at age 20, and underrepresented among those who were neither studying nor employed at age 20. The same trend is apparent with the attitudinal composite, but not so marked.

Table 4.8: Age-8 highest quartile competency performance by age-20 activity

Competency performance—highest quartile ***Row percentages***	**Studying at 20** **(*n* = 251)** **63%**	**Employed at 20** **(*n* = 114)** **28%**	**Neither studying nor employed** **(*n* = 36)** **9%**
Reading comprehension (*n* = 104*)*	79	20	1
Maths (*n* = 102)	76	22	2
Logical problem solving (*n* = 100)	81	19	0
Attitudinal composite (*n* = 100)	69	26	5

Note: N = 401.

These patterns are somewhat more evident at age 14. Of those in the lowest quartile of our cognitive competency composite at age 14, 44% were studying at age 20, 38% were solely employed and 18% were neither studying nor employed. Of those in the highest quartile of our cognitive competency composite at age 14, 82% were studying at age 20, 18% were solely employed and none were neither studying nor employed. The same patterns are evident in terms of age-14 performance levels on the attitudinal competency composite, with similar proportions.

Highest school qualifications

Table 4.9 shows school qualifications in relation to the 20-year-olds' main activity, using Ministry of Education data. All but six percent of those studying at 20 had at least NCEA Level 2. Two-thirds of those who are solely employed also gained NCEA Level 2, but only one-third of the neither studying nor employed group.

Table 4.9: School qualification by age-20 activity

Qualification	**Studying at 20** **(*n* = 251)** **%**	**Employed at 20** **(*n* = 114)** **%**	**Neither studying nor employed** **(*n* = 36)** **%**	**Overall for sample** **(*n* = 401)** **%**
General qualification				
No completed NCEA/NQF qualification	2	10	39	8
NCEA Level 1/other Level 1 NQF	4	28	28	13
NCEA Level 2 /other Level 2 NQF	16	36	25	22
NCEA Level 3 /other Level 3 NQF	78	26	8	57
Literacy and numeracy qualifications				
NCEA Level 1 literacy and numeracy	97	89	69	92
UE literacy and numeracy	73	22	8	53

Note: N = 401.

Age-14 experiences and relationships linked to age-20 activity

Learning was well fixed in the age-20 students' experience. Six years earlier, they showed higher levels of engagement in school, confidence in the school environment, more use of indications other than marks to gauge learning progress (eg, their growth in understanding) and higher motivation in relation to education than those who were solely employed or neither studying nor employed at age 20. Twenty percent of those who were students at 20 had had low motivation in relation to education at age 14, cf. 40% of the solely employed, and 53% of the neither studying nor employed.

When they were aged 14, 91% of the age-20 students thought they would stay at school until the end of Year 13 (cf. 67% of the neither studying nor employed, and 79% of the employed at age 20). However, there was no difference among the three groups in how long it had taken them to settle into the secondary school environment.

The families of those who were studying at 20 were more supportive and communicative than the families of those who were employed or neither studying nor employed, when the sample was aged 14. Those who were employed were more akin to those who were neither studying nor employed than to those still studying in terms of their views of school, but tended to have more family support and communication, and to have lower levels of risky behaviour or friends with risky behaviour than those who were neither studying nor employed. The latter showed some differences in their leisure interests, with lower proportions of those who came into the "sports-players" cluster of interests. Age-20 students had lower proportions of those whose main interest was electronic games, or nothing, and higher proportions of parents whose own interests related to literacy or forms of (community) involvement. They were also more likely to come into the "anchored and achieving" cluster of values. Loneliness and feeling left out were more likely among those in the neither studying nor employed group—though these feelings were uncommon.

It was rare for those who were neither studying nor employed at 20 to have had no experience of bullying between the ages of 8 to 14: six percent, cf. 33% of those studying at 20, and 26% of those employed at 20. The neither studying nor employed had lower levels of reading enjoyment, and higher levels of TV watching over the 8–14-year-old period than their peers whose main activity at age 20 was studying or employment.

Age-16 experiences and relationships linked to age-20 activity

Not surprisingly, we see the same trends in relation to age-16 attitudes, relationships and experiences. Age-20 students show higher engagement in school, higher levels of absorption in learning and tackling schoolwork. Only 16% of those who were studying at age 20 were in vocational or contextual subject clusters, cf. 84% of the neither studying nor employed, and 45% of the employed.

Those who were employed at 20 and the neither studying nor employed groups generally had similar levels of their attitudes to learning, schoolwork, NCEA work and satisfaction with subject mix. However, those who were employed at 20 were most likely to be in the lowest quartile group on our measure of school engagement (45%, cf. 36% of the neither studying nor employed, and 18% of the students at age 20). Half those who were neither studying nor employed at 20 had poor or only fair school attendance, cf. 34% of the solely employed, and 17% of the students, and fewer of those who were neither studying nor employed gave high ratings to their learning environment, if they were at school at 16.

What most differentiated the neither studying nor employed group at age 20 from those who were employed, was family support and communication (lower for the former group), friendship activities that extend individual knowledge and skills (again lower for the neither studying nor employed), adverse events in the previous 12 months, risky behaviour, friends with risky behaviour and family pressure (all higher for the neither studying nor employed group).

Intriguingly, levels of feeling engaged in school, or positive attitudes to the work of school did not seem to translate directly into thoughts about how long these young people thought they would remain at school. When they were 16, two-thirds of the neither studying nor employed group thought they would stay at school until the end of Year 13, as did 78% of those who went on to be employed at age 20 and 89% of those who were students at age 20.

There were clearer distinctions among the three age-20 groups apparent in thoughts of what they would do immediately after leaving school. Table 4.10 shows that the clearest continuity between this thought of the future and actual future occurred for those studying at age 20. Thoughts of taking time out after school—to do something that was not clearly on the traditional routes to enhancing one's human capital or gaining a living—were highest among those who were neither studying nor employed at 20, but not substantially higher than among those who were employed at 20. The proportion of students who had thought of taking time out was much lower than one might expect from the recent attention to the concept of a "gap year".

Table 4.10: Likely immediate post-school destination thought of at age 16 by age-20 activity[37]

Destination	Studying at 20 (*n* = 239) %	Employed at 20 (*n* = 102) %	Neither studying nor employed (*n* = 23) %
University	85	54	39
Other study (at PTE)	12	16	26
Time out/gap year	13	26	30
Employment (full-time)	15	28	22
Polytechnic	14	29	4

Note: N = 364.

Actual destinations in the first year after school as recorded in the Ministry of Education data-sets show a somewhat different picture, at least for those who were not currently studying. Most of the current students had indeed gone straight to university. But 45% of those who were solely employed at 20 had gone to employment after their last year at school. Over half those currently unemployed or on a sickness benefit, or looking after their own child had gone on to tertiary study other than university—and only one had gone to university. Though the proportions of those going on to neither study nor employment were higher among the neither studying nor employed group at 20, they amounted to only around half the proportion who talked of having time out.

There were similar patterns in the immediate post-school destinations for those who had no school qualification, and those who had NCEA Level 1: around half going on to some form of non-university study, and around a fifth going into employment. Those leaving with NCEA Level 2 showed the most varied pattern: around 40% went into non-university study, around a third went into employment and 16% were recorded as being at university. Just over two-thirds of those with NCEA Level 3 went from school to university; 12% to non-university study, and nine percent into employment.

Accounting for differences in age-20 main activity

We found many associations between the main activity reported at age 20 (study, employment, neither studying nor employed) and other aspects and previous experiences and performance in the lives of the young people. In an attempt to identify some of the most salient associations among these aspects, we fitted a multinomial regression model to

[37] This question was asked only of those still at school at age 16.

predict the most likely outcome, given earlier experiences, opinions, characteristics or achievements (see Appendix C). Because of the interrelationships between different variables, the most salient aspects were qualification levels and age-16 thoughts about what they would do when they left school.

Studying at age 20 was most likely for those with NCEA Level 2 or Level 3 qualifications, particularly those who at age 16 had thought they would study at university. Neither studying nor working at 20 was in all instances most likely for those with no school qualification, particularly those who at age 16 thought they would do non-university study or have time out when they left school. Employment at 20 was most likely for those who had NCEA Level 1, particularly if by age 16 they already saw work as their most likely post-school option.

Views of their current activity

Table 4.11 shows that 20-year-olds who were studying were happiest with their activity (87%). Almost a third of those who were currently unemployed were unhappy with that situation, in contrast to only five percent of those caring for their own child. However, a higher proportion of the neither studying nor employed group would like to be doing something other than what they were currently doing, including those who reported that they were happy with what they were doing.

Table 4.11: Happiness with current main activity

Happiness level	Studying at 20 (*n* = 251) %	Employed at 20 (*n* = 114) %	Neither studying nor employed (*n* = 36) %
Very happy	38	29	31
Happy	49	39	19
Neutral/not sure	12	24	25
Unhappy	1	8	14
Very unhappy	0	1	11

Note: N = 401.

Forty-one percent of the participants would prefer to be doing something other than their current activity. Almost half the neither studying nor employed group would prefer to be employed; they were less interested in study. Among those who were employed, some were seeing that they did not want to stay in the kind of work they had.

Table 4.12: Preference for something different

Preference	Studying at 20 (*n* = 251) %	Employed at 20 (*n* = 114) %	Neither studying nor employed (*n* = 36) %
No preference for something else	67	52	33
Travel/holiday	15	9	0
Not sure	5	5	0
Employment	4	3[38]	47
Study something different	4	0	0
Study at another institution	2	1	0
Work in a different field	2	13	0
Other	2	4	11
Study	0	18	14
Apprenticeship	0	2	0

Note: N = 401.

Health, the creative arts and IT were the three main areas of interest to those who would rather be studying (18% of the currently employed, and 14% of the neither studying nor employed groups). Careers that looked interesting to those wanting to change employment or get employment ranged widely.

Barriers to doing something different were mainly lack of money (44% of those who would like to be doing something different), or lack of qualifications or skills (19%). Five percent mentioned either a change in themselves, such as greater confidence, or relocation. Three percent mentioned a change in employer attitudes. Only a few mentioned support from family or friends as barriers to their making a change.

Those neither studying nor employed were most likely to mention their need for higher qualifications or skill levels and a change in employer attitudes to make their desired change in activity. They were just as likely as others to think they would tackle these barriers. Money was the main obstacle mentioned by those currently studying or employed. Most of those who thought either they could not make a change in what they were doing or could not be bothered were among those currently studying That might indicate that they see more options, but that the opportunity costs if they had to start afresh (rather than changing within a wider framework, as we saw with those who changed their main course), were too high in terms of time and money.

A higher proportion among those who mentioned money as an obstacle were interested in study or travel, or changing their area of employment. Attractions among those who mentioned lack of qualifications or skills were primarily related to employment, study, working in a different area and travel.

We asked those who said they would try to change things what they would do. A third would save more; the other main responses were to study or train (particularly among those neither studying nor employed), and to push or challenge themselves more (particularly among those who were employed).

[38] This could be to do with different hours of employment.

Connections of current activity with previous experience

We asked the young people how what they were doing now—whether study, employment or neither—was connected with aspects of their previous experience. Figure 4.3 shows that school subjects were connected to what they were currently doing as 20-year-olds for half of this group; tertiary study for around 40% and around a third could connect what they were currently doing to a long-held desire, leisure interest or paid work. Extracurricular activity had played a role for just under a quarter.

Figure 4.3: Connections with current main activity

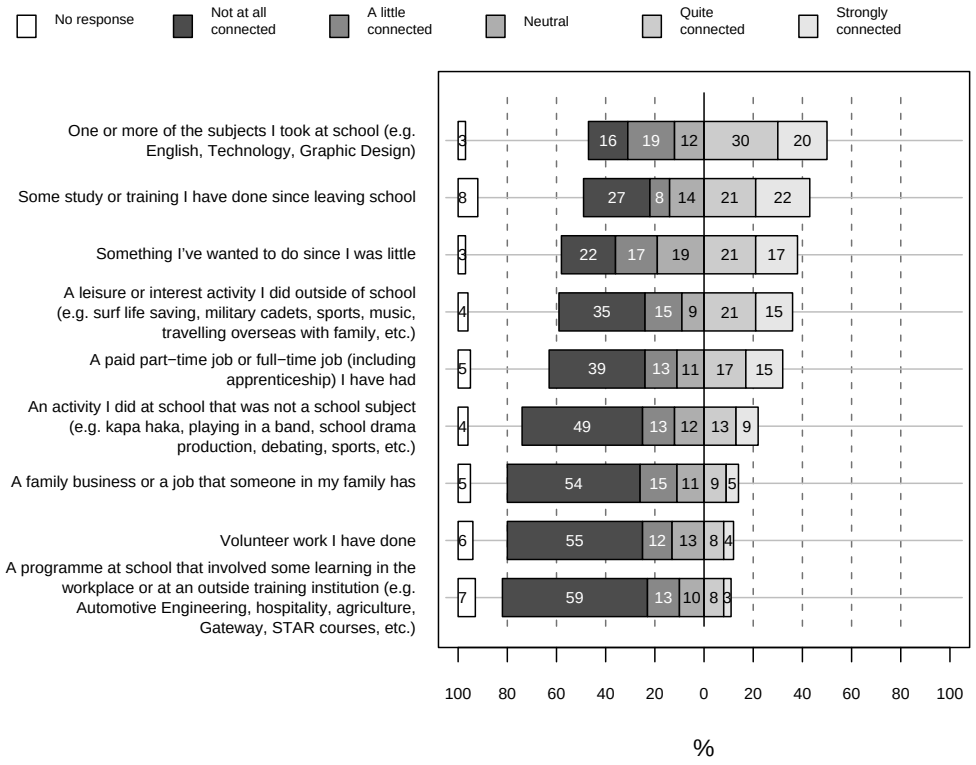


Table 4.13 shows that those who were studying were most likely to mention connections with school subjects, with what they had studied since school and what they had wanted to do since they were little. They were also somewhat more likely to see a connection with a job held by a family member, or with a family business. Those who were currently employed and those who were neither studying nor employed had similar patterns of connections. The latter were most likely to make a connection with voluntary work, or to mention school programmes with a workplace or vocational tertiary component—which they would be more likely to have undertaken.

Table 4.13: Connections between current activity and previous experiences or interests

Connected	Studying at 20 (*n* = 251) %	Employed at 20 (*n* = 114) %	Neither studying nor employed (*n* = 36) %
School subject	66	24	33
Study/training post-school	51	30	36
Something wanted to do since little	47	26	25
Leisure interest outside school	40	29	36
Paid employment	29	38	39
School activity that was not a subject (extracurricular)	24	18	22
Family job or business	17	11	9
Volunteer work	12	8	28
School programme with workplace/tertiary component	10	10	17
Other	2	2	11

Note: N = 401.

Major regrets

A quarter of the 20-year-olds (*n* = 98) had some major regret about what they had done since they left school. Those neither studying nor employed were more likely to feel some regret in looking back (36%). They were more likely to regret a decision related to employment (39% of those with regrets in this group, cf. seven percent of those employed at age 20 who had regrets, and two percent of those who were studying and who had regrets). They were less likely to regret a decision related to study (39%, 57% and 53% respectively). Study and employment were the main sources of regret. Financial decisions, leisure activities, travel and partner—other ways through which the young people were exercising their independence as young adults, making choices and decisions and living with their consequences, also featured.

We asked those who said they had some major regret about their lives post-school if they regretted a decision, or lack of decision; and action, or lack of action. Forty-three percent of those with a major regret were thinking of a definite decision, and 27%, a definite action. Thirty-four percent regretted not taking action, and 18%, their indecision. Lack of decision or action was regretted more in relation to employment than to study; and action more in relation to study than to employment.

Those neither studying nor employed were most likely to regret a decision they made; those studying, a lack of action.

Age-20 family relationships and feelings

Here we look briefly across the range of questions we asked about family relationships, behaviour and views to note some differences between those who were neither studying nor employed, and those who were employed or studying.

On the one hand, the lower levels of family support seen at ages 14 and 16 were no longer evident for those who were neither studying nor employed at age 20. Perhaps this reflects their move away from the school environment where they had struggled, reducing causes for family friction; and in some cases, with the mothers, the birth of the next generation

of the family acted to bring family members together. However, they were also more likely to mention family break-ups in the past year.

There was a tendency for the neither studying nor employed group to have higher rates of risky behaviour, and depressed feelings than others. Their levels of optimism were much the same as those who were employed; both groups showed less optimism than those studying at age 20. The neither studying nor employed group was less likely than others to think it important to do well at work or study, or to have a good sense of humour, though the difference is related to higher proportions giving a neutral view about such things, rather than saying that they were not important.

Discussion

Family resources as well as previous competency levels had a bearing on the main situation of the 20-year-olds, differentiating mainly between those engaged in formal study, and those who were not—whether they were currently employed or not. The role of family resources in whether young people make formal study a major focus of their post-school development is well documented, particularly in relation to parental education levels. Our data on family income also show that earlier as well as more recent levels are related to whether 20-year-olds are studying. These feed into final school qualification levels: so by age 20, of those who continued to study almost all had NCEA Level 2 or Level 3—not surprising, since most of these were taking university courses.[39]

In the two previous chapters, we have seen that those who left school before the age of 17, those less likely to gain NCEA Level 3, were more focused on employment than those who did gain these qualifications as they headed out from school. They had also been less engaged with school, the setting which would have framed their experience of study, and would appear to have developed less motivated and confident "learning identities" than their peers. Thus the variable other than final school qualifications that appeared important to determine which experience and achievement have made not studying more likely was the main post-school option each individual identified when they were 16.[40] It is telling how many of the neither studying nor employed group simply wanted "time out" after schooling—a break from something that had not yielded a meaningful or positive identity, or identified alternatives post-school that they would want to follow. "Time out" implies weariness of a certain activity or its demands, and expresses some desire to be free of demands. Thoughts of immediate post-school destination were interrelated with many other variables, so we can see it as standing in some senses as an individual's summation of pathways into adulthood that appeal, pathways that seem realistic and what they carry with them from school.

Those who were neither studying nor employed did carry less with them from school than did others; but they also carried less with them from their relationships and experiences outside school, particularly in terms of a sound platform for resuming study in another form, or taking employment that they enjoyed. They had lower levels of family support and communication; and more experience of risky behaviour—which goes with higher levels of feeling pressured by family. They were most likely to have experienced or taken part in bullying. They enjoyed reading less, and watched television more. At age 16, they were least likely to enjoy friendships that extended them as individuals, and most likely to experience adverse events.

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39 Those at university included some whose records show NCEA Level 2 rather than Level 3, not all of whom had gained UE. This indicates that they could enter university either by use of the now-threatened adult entry from age 20, through universities using looser entry criteria than they are now using or through the use of Cambridge International qualifications, which are not recorded in the Ministry of Education databases.

40 There was some difference between the three groups in terms of how long they had thought at age 16 that they would stay at school, but this difference was not as marked as differences in thoughts about what they would do on leaving school.

While those who were solely employed were more akin to those neither studying nor employed than to those studying at age 20 in their earlier reactions to school and investment of effort there, they tended to have had better levels of family support and communication, and less experience of risky behaviour while they were in early and mid-adolescence.

Those who found themselves neither studying nor employed at 20 had found it harder to decide what they wanted to do, to find a job or establish a career, and they were more likely to experience boredom. There is the least continuity between their main activity since they left school and what they were doing at age 20. Those who were studying at 20 had the most continuity, as they also had more continuity in their current activity with what they had studied at school, and what they had wanted to do when they were little.

It is interesting that advice to school-leavers on their decisions about what to do after school is dependent on family, friends (to a lesser extent) and particularly for those going on with study, teachers and higher education staff: the employment side of the passage barely figures, despite many of the young people working while they were at school.

Most of the young people had experienced both work and study since they left school, with employment featuring more for those who were solely employed at age 20. Travel was undertaken by around a quarter of the young people, but much less by those who were neither studying nor employed at 20.

A quarter of the 20-year-olds had some major regret about what they had done since they left school, particularly those who were neither studying nor employed. Their regrets were more likely to be related to decisions around employment. But study was the source of more than half the regrets expressed, with some overrepresentation of those who left school without a qualification. There are also indications that those who did have a major regret related to study had started their post-school pathway less well equipped to go on learning, both in terms of approaches to learning and having some clear purpose for their learning.

5. Post-school study

Eighty-four percent of the 20-year-olds had undertaken some further study after they left school. In this chapter, we look at their study experiences, starting with the advice they used to make the decision on what and how to study. The current students are our first focus in this chapter, and we look at who they are, what they were studying towards and what they thought of their courses. We then focus on the 19% who had gained a post-school qualification, reporting their views of their courses and what they gained from them. Next, we look at those whose study decisions did not go as planned. We focus on the 11% who had left a post-school course without completing it, looking at their reasons, and aspects of their lives that may have had a bearing on their decision not to complete, or which indicate whether their pathway to adulthood may be less smooth and secure than others. Sixteen percent of the young people had changed a main course of study. This group appears to be of less concern in terms of forming a secure and independent adulthood than those who did not complete a course they had chosen. We look briefly at those who expressed a major regret about what they had done since school that was related to study. Finally, we report the young people's expectations that they would (need to) undertake study or training towards a qualification in their adult life, and the reasons for this.

Advice on post-school study

We asked those who had undertaken post-school study about their sources of useful advice in their first year or two of studying, about their course or its use. Table 5.1 shows that education providers were the main—but not universal—source of useful advice about the course or its use. Those still studying at age 20 were more likely to have family who could advise them. Those who were employed at 20 were somewhat less likely to mention higher education staff or friends. Those who were neither studying nor employed were more likely—in small proportions—to mention targeted policy assistance, such as training organisations, or career counsellors outside higher education.

Table 5.1: Sources of useful advice in first year or two of post-school study course by age-20 activity

Source	Studying at 20 (*n* = 250) %	Employed at 20 (*n* = 60) %	Neither studying nor employed (*n* = 28) %
Higher education staff	62	52	61
Family	42	30	29
Friends	32	22	29
Information on the Internet	21	17	21
Book/pamphlet	18	21	8
Other	9	7	14
Career counsellor at institution	7	5	0
Employer at a job	5	3	4
No-one	4	5	0
Employer at a careers fair/expo	1	2	0
Training organisation	1	2	7
Career counsellor outside higher education institution	0.4	0	11

Note: N = 338.

The current students

Most of the 250 students at age 20 were studying at universities, with 24 at polytechnics, two at a private training establishment and one at a wānanga. The 2009 interview data show that 48% of the sample were studying for a bachelor's degrFee at a university, and five percent for an honours or other postgraduate degree. One percent were studying for a Level 1 or Level 2 certificate, three percent for a Level 3 certificate and five percent for a Level 4 certificate. Two percent were not sure what qualification they were studying towards.

Only 36% of those studying at age 20 did not work. Taking on employment while studying was unrelated to family income or maternal qualification levels. Fifty-three percent of those studying had part-time employment, with an overrepresentation of females. Four percent (n = 10) had full-time employment. The small group who were also working full-time were studying for university qualifications; they had come from families with mostly comfortable financial situations at ages 14 and 16, and none of their mothers was without a qualification.

Seven percent of these 250 students (n = 17) had apprenticeships. All but two of the apprentices were male. None of the apprentices had university-qualified mothers; and 35% had mothers with no qualification.

Only seven percent of the age-20 students had left school without a qualification, or NCEA Level 1. This included just over a third of the apprentices, indicating the importance of the apprenticeship opportunity for this group. Sixteen percent of those currently studying had left school with NCEA Level 2, and 78% with NCEA Level 3.

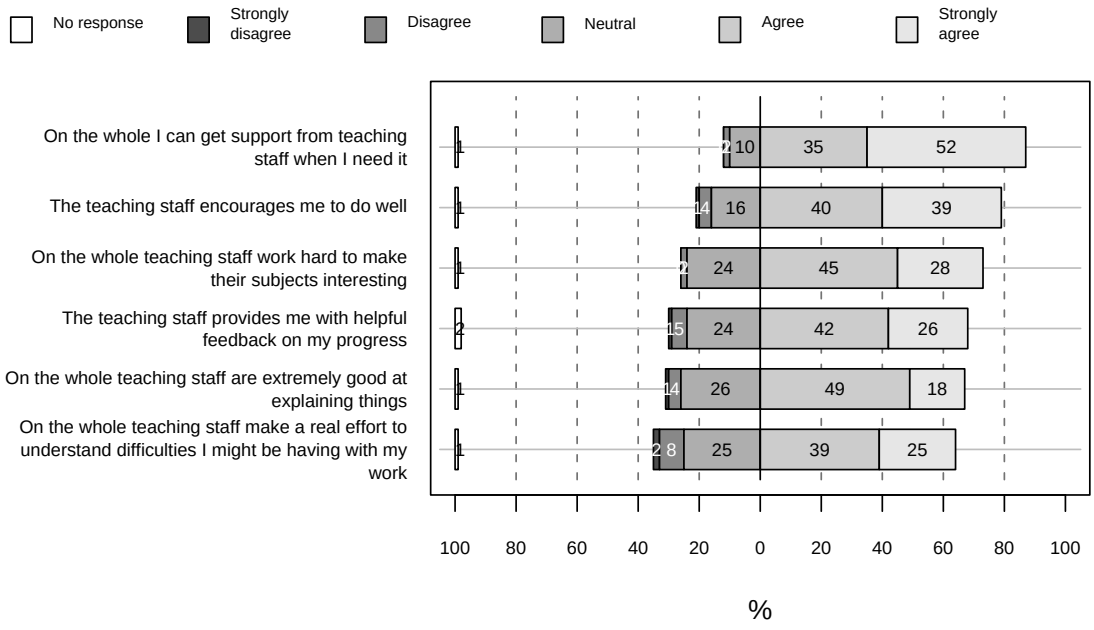
Few of the students spent more than 40 hours a week studying (14%). Those who did spend 40 hours or more a week on their study were most likely to be undertaking science, creative arts or architecture and building courses. Lowest hours were most likely to be put in by those studying engineering or related areas, information technology, and were also to be found amongst those in architecture and building courses. Half of those studying for a certificate spent less than 11

hours a week on study, cf. four percent of those studying for an undergraduate degree. Forty-one percent of the latter spent more than 30 hours a week in study, as did 50% of those undertaking postgraduate study.

Student views of their courses

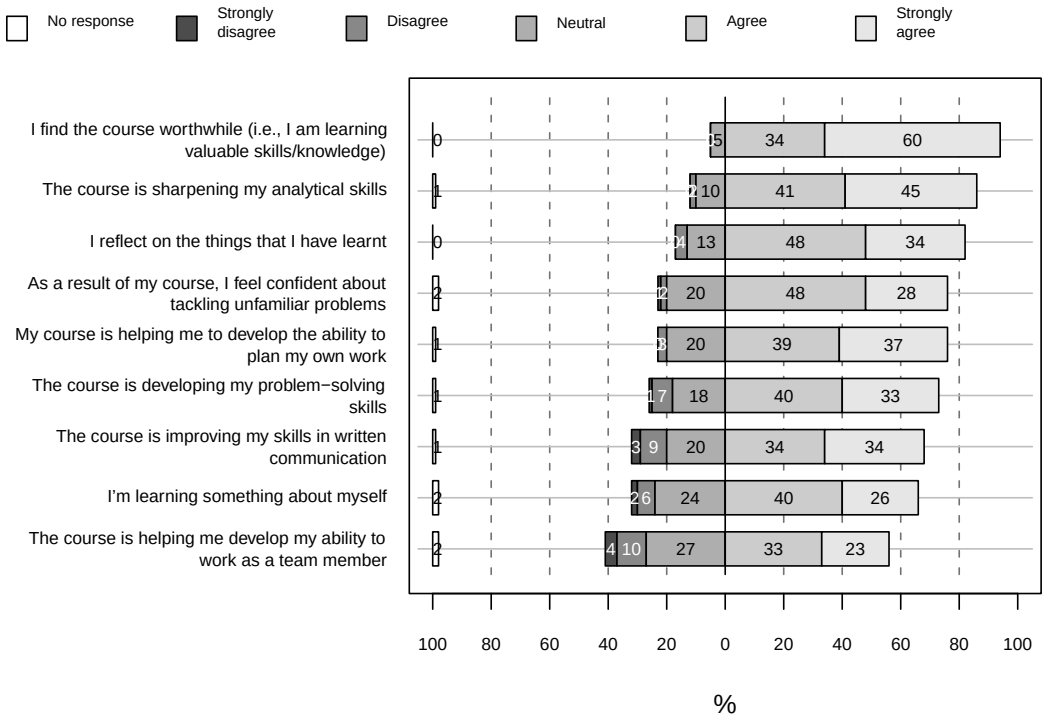
The next set of graphs gives age-20 student views of their courses. This sample of mainly university students was largely positive about the support they got from their tertiary teachers, with few expressing disagreement with the items. Around a quarter gave neutral views related to the quality of teachers' explanations, feedback, making their subjects interesting and making an effort to understand student difficulties with their work: this may indicate unevenness in their experiences with different subjects and their teachers.

Figure 5.1: Views of teaching staff approaches and support for students



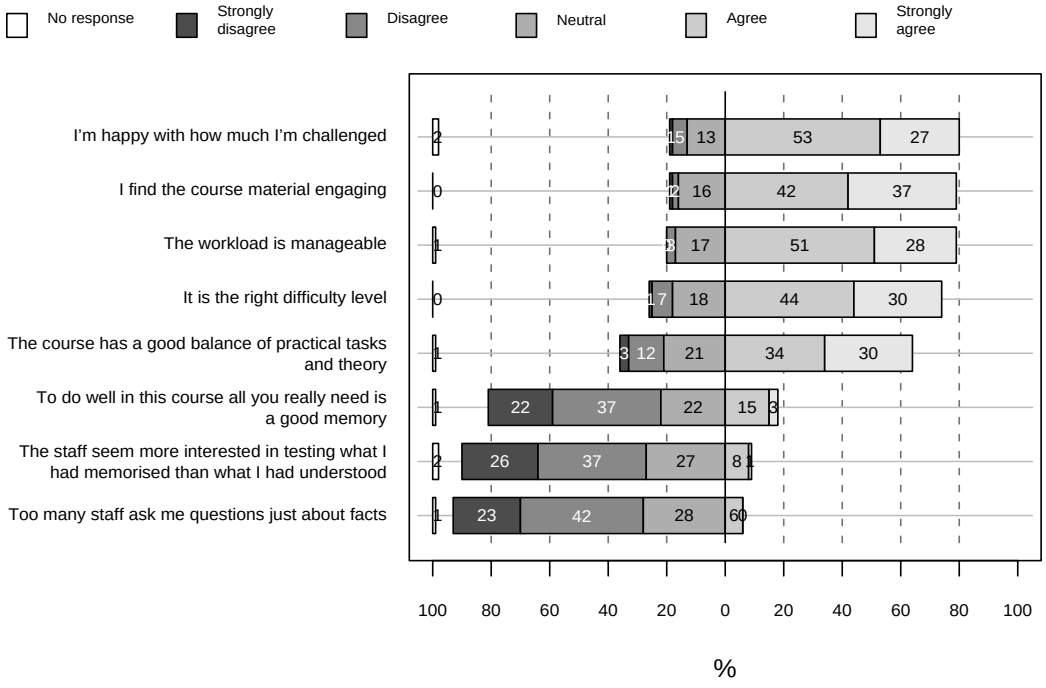
Almost all the current students were finding their course worthwhile, and many felt they were gaining a range of skills from their courses. Skill areas that around a quarter or more felt neutral about or disagreed that they were gaining were related to team work, written communication, problem solving and learning about themselves.

Figure 5.2: Views of gains in generic skills



The courses undertaken by these students did seem to challenge and engage most of them. Around a fifth felt neutral or disagreed about those aspects. Around a third did not agree that their course gave them a good balance of practical tasks and theory (refer to Figure 5.3).

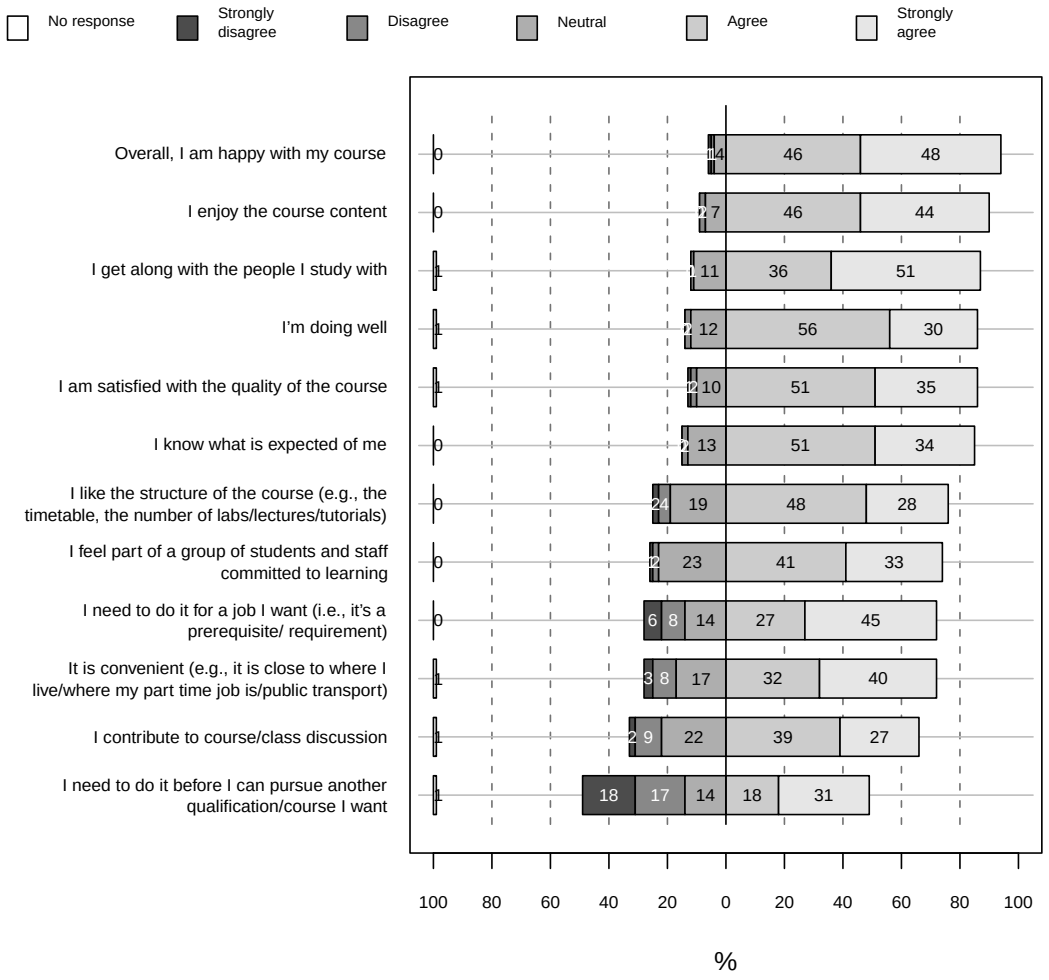
Figure 5.3: Views of workload and challenge



The age-20 students were largely satisfied and confident in their study. The items where a quarter or more expressed neutral views or disagreement in the next set of items (refer Figure 5.4), were mostly around whether the course was

needed for further study, or as a prerequisite for a desired job; whether the student thought they were contributing to course or class discussion, the convenience of the course, its structure and feeling part of a group of students and staff committed to learning.

Figure 5.4: Views of engagement in course, course uses and overall satisfaction level



With the caveat that we had very few postgraduate students among the age-20 Competent Learners participants, postgraduate students were the most satisfied with the quality of their course (69% strongly agreed that they were satisfied with the quality of their course, cf. 36% of those undertaking undergraduate study, and 20% of those undertaking certificate-level study). However, it was those undertaking certificate-level study who were most likely to strongly agree that their course would be value for money (67%, cf. 33% of those undertaking undergraduate degrees, and 38% of those undertaking postgraduate work). Overall, most students *did* think that their course would provide value for money (38% strongly agreed, 41% agreed; 16% were unsure or neutral, and five percent disagreed).

Views of course quality showed a few differences in relationship to the level of qualification aimed for. Those taking certificate-level courses were less likely to think their course was improving their skills in written communication, but more likely to think that to do well in the course, one just needed a good memory. They were also less likely to be happy with how much they were challenged, less likely to think their course was at the right difficulty level for them and less likely to think they were part of a group of staff and students committed to learning.

Views of course quality were largely unrelated to course subject, with the exception of overrepresentation of those studying creative arts or food, hospitality and personal services, and underrepresentation of those studying sciences

among those who were most positive about their course quality. Creative arts and architecture and building students showed the highest levels of course satisfaction.

Most of those studying at 20 expected to complete their current course within the next two years, with almost a third of the part-time study group expecting to do so within the next year. Almost a quarter, however, were looking to complete their qualifications in three years or more. Full-time employment was seen as the next step for over half (56% of the full-time study group, and 66% of the part-time study group); but a quarter saw themselves embarking on another course of study, and almost a third looked to travel. Those already studying full-time were more likely to mention full-time study (27%), and those already studying part-time, to mention continuation of part-time study (13%).

Post-school qualifications gained by age 20

Nineteen percent of the young people (*n* = 76) said they had gained a qualification since they left school, including 42% of the group who were currently neither studying nor employed, 33% of those currently employed and nine percent of those currently studying. Table 5.2 shows the qualifications gained by study after school by age 20, using interview responses. Most were at certificate level. Note also that, when interviewed, 16% were not sure what level their qualification was. There is a range of qualification levels in each of the three groups in terms of their main activity at age 20.

Table 5.2: Qualifications gained through post-school study by age 20

Qualification	Studying at 20 (*n* = 22) %	Employed at 20 (*n* = 39) %	Neither studying nor employed (*n* = 15) %
Level 1 certificate	9	8	0
Level 2 certificate	18	8	20
Level 3 certificate	27	10	20
Level 4 certificate	18	36	27
Level 5—undergraduate diploma	0	10	0
Level 6—undergraduate diploma	5	5	0
Level 7—bachelor degree	9	0	0
NCEA	5	5	7
Not sure	18	15	13
Other	14	13	0

Note: N = 76.

Half of these qualifications had taken less than a year to gain; 30% had taken a year, 13% two years and five percent three years. Crediting of work done at school was not usual: 16% said they had been able to do this.

All but 11% felt they had gained skills and knowledge from their course and qualification that they were currently using. Practical skills, discipline- or area-specific skills and communication skills were the most common skills gained. Those who were currently neither studying nor employed were somewhat less likely to have gained computer skills, communication, teamwork or study skills.

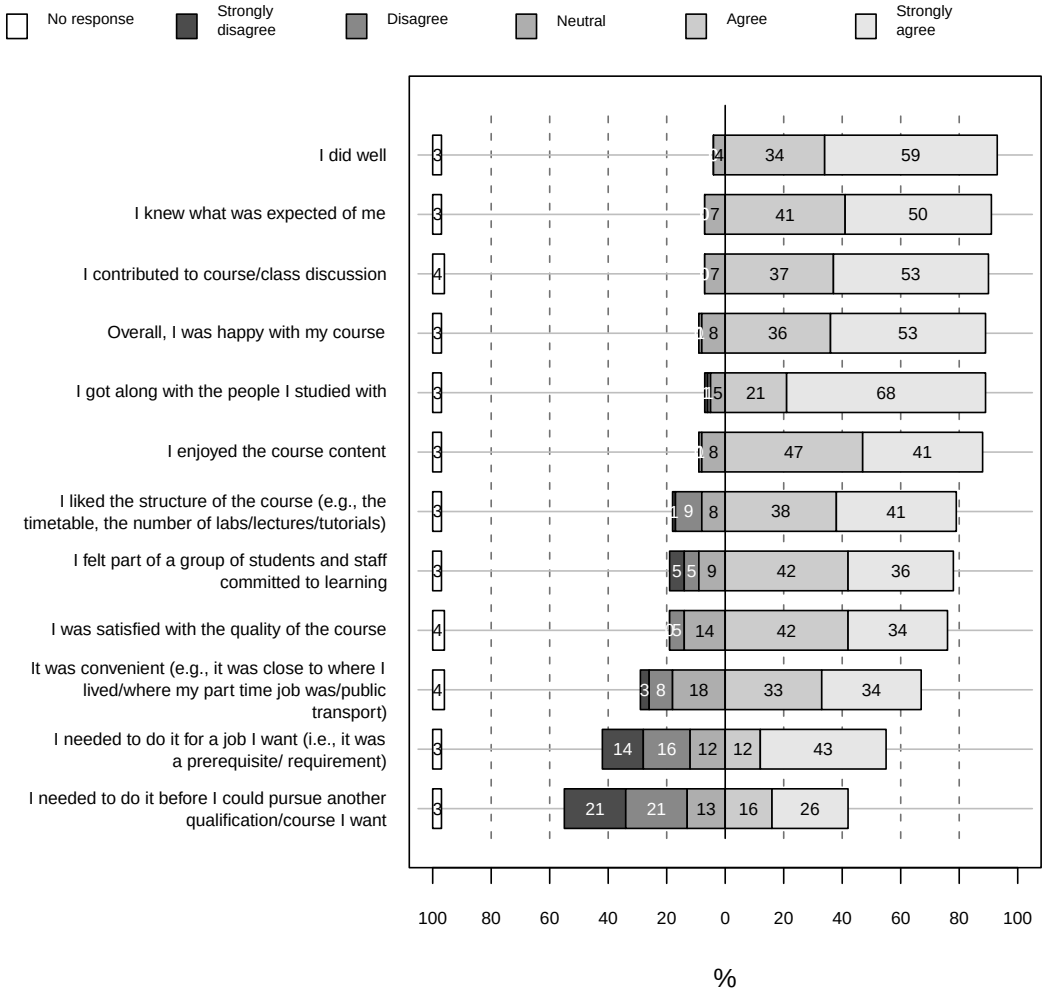
Table 5.3: Gains from post-school qualifications by age 20

Skills	Studying at 20 (*n* = 22) %	Employed at 20 (*n* = 39) %	Neither studying nor employed (*n* = 15) %
Practical	46	41	47
Discipline/area-specific	41	28	40
Communication	36	41	27
Study	32	26	20
Teamwork	27	26	13
Computer	18	23	7
Written communication	14	13	15
Other	14	8	0
Maths/budgeting/managing money	9	8	13
Leadership	5	13	13
Career planning	0	5	0

Note: N = 76.

Those who had completed a qualification by the time they were 20 were largely positive about their course experiences, with 90% happy or very happy with their course overall. Just over half had taken their course to get a job they wanted, and 42% so they could get on to another course.

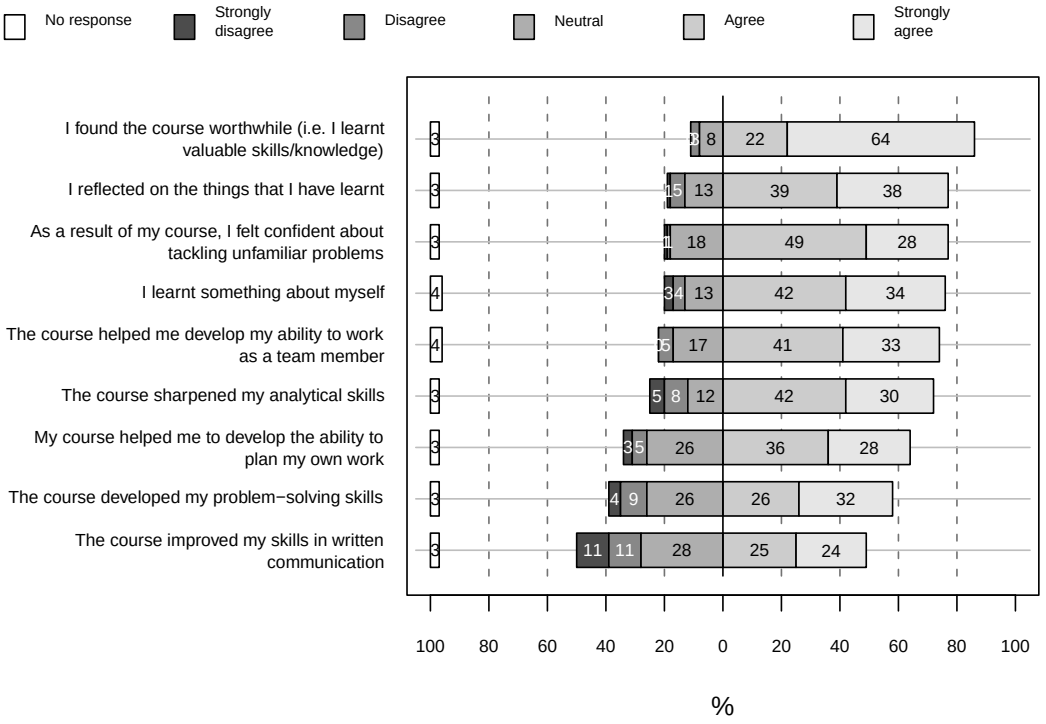
Figure 5.5: Views of engagement in course, course uses and overall satisfaction level—students who have completed qualifications



Note: N = 76.

Most of those who had completed a post-school course felt they had gained some generic skills, such as confidence in tackling unfamiliar problems, and developing their ability to work as a team member. Around 50–60% thought the course they had completed had developed their ability to plan their own work, problem-solving skills or improved their written communication skills.

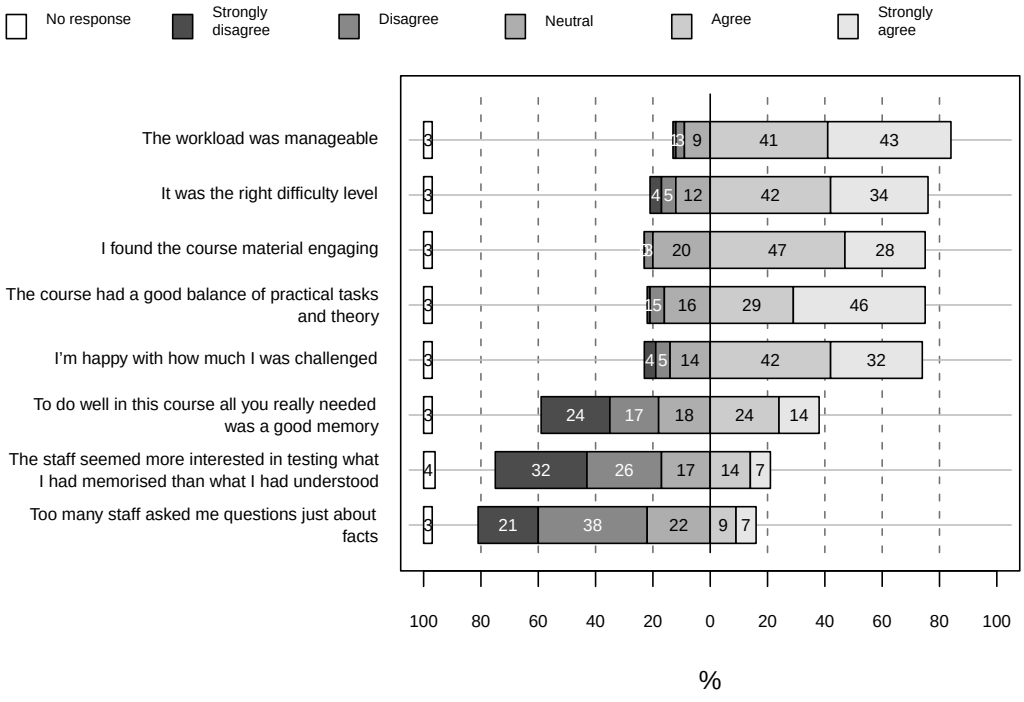
Figure 5.6: Views of gains in generic skills—students who have completed qualifications



Note: N = 76.

Around three-quarters had found their course material engaging, and had been happy with how much they had been challenged in their course. Their courses did not seem to have rested on the transmission of facts, though 38% felt that to do well in their course all that had been needed was a good memory.

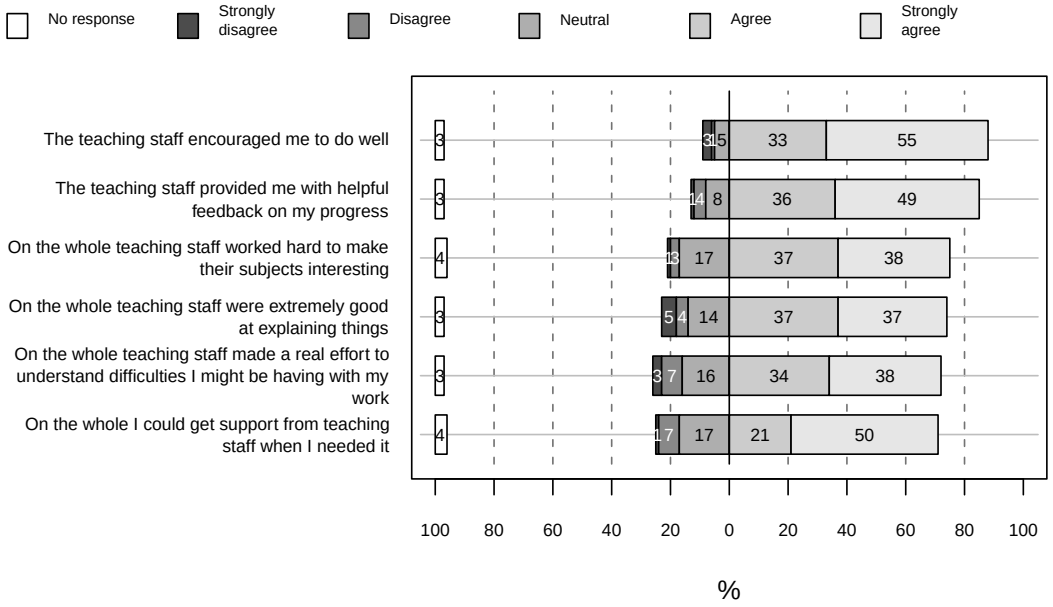
Figure 5.7: Views of course workload and challenge—students who have completed qualifications



Note: N = 76.

Most were positive about the teachers they had had on their post-school course: They felt they had had teachers who worked hard to make their subjects interesting, had encouraged them to do well and provided them with helpful feedback and would provide support if they needed it.

Figure 5.8 Views of teaching staff and support for students—students who have completed qualifications



Note: N = 76.

Comparing the course views of those who had already completed a post-school course, and those who were currently studying showed that those who had completed a course were somewhat more favourable about the quality of teaching staff; having had a mix of practical and theoretical work, knowing what was expected of them and getting along with fellow students. These differences probably reflect differences in course subjects, with most of the current students studying university courses; and in delivery, with the certificate-level courses more likely to be provided in smaller groups, and more intensively.

Course noncompletion

Eleven percent of the sample (*n* = 43) had embarked on a post-school course without completing it, with an overrepresentation of those who were neither studying nor employed, 39%; 19% of those employed at age 20, and three percent of those studying at age 20.

Main reasons given for not completing a course were mostly related to interest and course content, not performance. However, 21% of those who were neither studying nor employed stopped because they had a child.

Just over a third of those who left a course without completing it made the decision on their own, without any advice. This was particularly true for those employed at age 20 who had studied post-school (55%). Others took advice from family, particularly those who were neither studying nor employed (57%, cf. 41% of those currently employed who had not completed a post-school course), and to a lesser extent, higher education staff (14% of the neither studying nor employed, cf. five percent of the employed who had not completed a post-school course). Friends were not a major source of advice on such a decision (nine percent).

Fifty-eight percent of those who did not complete a course thought they had done the right thing to stop their study when they did; 16% thought they had made the wrong decision; and nine percent were unsure. Sixteen percent of this group did not answer this question.

While 18% of those who did not complete a course said they had gained no skills or knowledge from their course, most thought they had gained something that they were using, even if not a qualification. General communication or social skills were most mentioned (30%). Also mentioned were practical (18%), study (16%), teamwork (12%) or computer skills (nine percent); skills specific to a particular study or work area (nine percent), and written communication skills (seven percent).

Thirty-three percent of those who had not completed a course thought they would return to gain their qualification, particularly among those who were neither studying nor employed (50%). A further 14% were unsure if they would return or not. Main reasons given for returning to the course were to gain employment (36%) and for personal satisfaction (36%). Those who thought they would resume their course were equally divided between those who thought they had done the right thing to leave it, and those who thought they had not.

Fifty-six percent of the group who had not completed a course also thought they would study for a different qualification. Seventeen percent of the group who had left a course without completing it thought they would both return to that course, and also study for a different qualification.

Sixteen percent of those who had left a course without completion had gained a qualification by the time they were 20. Their highest post-school qualification was more likely to include Level 1–3 certificates, and NCEA. At age 20, 46% of those who had not completed a post-school course were not undertaking any tertiary study, cf. 23% of others who had undertaken some post-school study and gained a qualification.

At age 20, there were some differences between those who had left a course without completion and others who had studied post-school. Those who had left a course without completion were less likely to:

- have a close and supportive family
- have positive relations with their mother or father
- have extending friendships
- say one of the best things about leaving school was being able to learn in new ways and have real life learning
- have “disciplined learning” patterns of learning (this factor has 12 items, such as “I always begin a task without thinking about it first”; “If I’m stuck with a learning task, I can think of a way around it”, “If learning is boring, I can find a way to make it interesting”).

They were more likely than others who studied since school to:

- need support to learn
- have found it hard to make career decisions and find employment when they left school
- have found it hard to adapt to new situations (eg, living away from family or home town)
- experience rejection and undertake risky behaviour.

A third of this group had a major regret related to study, cf. 13% of the age-20 sample overall.

Experiences of unemployment were more likely among this group of noncourse completers (35%, cf. seven percent of others studying post-school), as was having a child (20% and two percent respectively). Not unlinked to this is the overrepresentation of females among those who left a course without completing it. There were some differences related to qualification levels and family income, with more in this group having mothers without a qualification (21%, cf. nine percent of others studying post-school), and fewer from high-income families (21% were from families with incomes of $100,000 or more when the young people were 16, cf. 37% of others studying post-school).

Rates of course noncompletion were higher among those who left school before age 17 (33% of those in this group who undertook post-school study, cf. 10% of those who left at 17 or 18)—though this may simply reflect less time out of school for the latter.

Those who left school with no qualification were most likely to not complete a post-school course (46%). There was no difference in the rate of noncompletion for those who left with NCEA Level 1 and those who left with NCEA Level 2. There are no links between competency levels between ages 8 and 12 and noncompletion of a post-school course, but links are apparent between age-14 and age-16 competencies and noncompletion of a course, with lower levels for both cognitive and attitudinal competencies at these ages among those who later quit a post-school course. This suggests that possibly this group's orientation to learning is affected by what they do and experience in early adolescence.

There are a few links with age-14 factors that sit with the emphasis on interest given as one of the prime reasons for noncompletion—but which also underline one of the major themes from the adolescent phases of the Competent Learners study: the importance of interests in developing purpose and identity.

- Forty-four percent of the course noncompleters would have liked more guidance on their subject courses, cf. 21% of others who studied post-school.
- More of the course noncompletors had low motivation levels at age 14 (40%, cf. 25% of others who studied post-school).
- There were lower levels of confidence in the school environment, of being absorbed in learning, and higher levels of disengagement in school at age 14 among those who did not complete a post-school course (however, there were no differences in experiences of positive learning environments at this age).
- Out-of-school interests were more likely to fall into the "computer games/no interests" cluster, with fewer in the "sports" cluster.
- Almost half felt lonely at school at least sometimes, cf. 33% of others who studied post-school.
- This group also had lower scores for family communication, and higher scores on the measure of parent–child friction (reported by parents).
- The group was more likely to have experiences of bullying between ages 8 to 14.

At age 16, we found more links between experiences and views and post-school course noncompletion:

- lower rates of attendance, engagement in school, of being absorbed in learning, of intrinsic motivation, attitudes toward NCEA and satisfaction with subject mix (but no difference in whether they would have liked more guidance on subject choice)
- more likely to have been in the "contextual" cluster of subjects
- higher rates of risky behaviour
- lower levels of happiness (as judged by parents)

- lower rates of extending friendships.

Those who did not complete their post-school course were more likely to have gone in their first year after school to non-university courses (53%, cf. 25% of others studying post-school).

However, 28% of this group had headed to university. Noncompletion of courses leading to a qualification by age 20 were less likely to be reported by those currently studying for an undergraduate degree (seven percent), which may reflect the ability to change courses within these degrees without having to exit the main course. Such changing was most likely for those who were currently studying for an undergraduate degree, as we see next.

Change of study course

Sixteen percent of the young people (n = 66) had changed their main course of post-school study. All but one of these, who was employed, were in the group still studying at age 20. The majority (83% of those who had changed their main course of post-school study), were studying towards an undergraduate degree.

Not enjoying the course content was the main reason given by these young people for making a change in their study course (49%). Nineteen percent said they changed because they were getting poor results, six percent said they found their course too difficult and five percent found the workload too high. Seventeen percent said they found something more interesting to do, and 15% found the course was not relevant to what they wanted as a career.

Just over half said it had been easy to decide that they wanted to change their course, and 80%, to actually make the change. Ease of decision about making the change in course, or actually making the change, were unrelated to the reasons for wanting to make a change.

Those who changed their main study course were a different group from those who left a post-school course without completion. Only nine percent (n = 6) of those who changed a course had also left a course without gaining its qualification. Eighty-eight percent of the post-school course changers left school with NCEA Level 3, 11% with NCEA Level 2 and only two percent with no qualification. All but six percent had left school at ages 17 or 18.

They were more likely to have university-qualified mothers (39%, cf. 18% of those studying post-school). They were also more likely to:

- have always enjoyed reading (from ages 8–14)
- show higher levels of engagement in school and confidence in school at age 14, and high motivation levels then
- have good communication with their family, and solid friendships at age 14
- be in the traditional arts or science subject clusters at age 16, and to give university as their likely post-school path
- be in the lowest quartile for a “Strategic approach” to learning. This factor includes 12 items, such as asking for advice or help when not sure how to do something, “knowing if something is important that I can find a way to learn it”, and “liking to find my own way to do things”
- be in the lowest quartile for the “Need support to learn” factor.

Only three percent of the course-changers had experienced unemployment, and none had had a child. They were less likely than others who studied after school to say that moving on to employment was one of the best things about leaving school or, conversely, to say that they had found it hard to adapt to new situations when they left school.

Thus, those who changed post-school study courses, in this sample, appear to be confident, though not always able to take a strategic approach to learning. Because most of their course changing was occurring within the larger frame of a university degree, course changing was relatively straightforward for them.

Regrets in relation to post-school study

When we asked whether the 20-year-olds had any major regrets about what they had done since school, 13% (n = 52) had a major regret in relation to study. Those who voiced such regret were just as likely to still be studying as others, and more likely to have undertaken post-school study than those with no major regrets, or major regrets about other matters. Their pattern of immediate post-school situations and current situation was no different from those who had no major regrets about decisions they had made between school and age 20, or those who had other major regrets. Regrets about study were not linked to social characteristics, nor generally to previous competency scores from ages 8 to 16. However, those who left school with no qualification were overrepresented in those who had major regrets about study.

Thirty-nine percent of those with major regrets about study would have liked more guidance about their subject choice at age 14, as would 36% of those with other major regrets, cf. 21% of those without major regrets.

Those with major regrets to do with study were less likely to be among the top quartile for our measure of disciplined learning, and more likely to be in the bottom quartile for our measure of strategic learning. They were less likely to think that one of the best things about leaving school was that they could learn in different ways, and to say they had found it hard to adapt to new frameworks after leaving school, and to make decisions about jobs and careers. They were less likely to say they had gone for their current job, if they had one, because it had suited them and their interests. They were also less likely to be in the top quartile on our measure of optimism about the future. This overall pattern suggests that by age 20 there is a small group of young people who feel they have made poor decisions about post-school study, linked to lower levels of learning skills, with suggestions that this group needed more support to bridge school and the post-school world of such decisions, in a less structured world than school.

The ongoing role of study towards qualifications

All but two percent of the 20-year-olds expected to undertake study or training towards a qualification in their adult life. Eighteen percent expected to do this once, 51% two or three times and 20%, more than three times. Six percent were unsure. Those who were currently studying were most likely to think they would undertake qualification-related study two or three times. Those who were currently neither studying nor employed showed the widest range, with 31% thinking such study would occur only once, but 25% seeing themselves studying for qualification more than three times.

Reasons for views about the need for further qualification study are given in Table 5.4. Expectations of ongoing qualification-linked learning were primarily related to knowledge and skills acquisition, rather than job opportunities, flexibility, status or money. There was more anticipation of further study within a single career area or area related to it than of studying in order to change career areas—particularly for those currently studying, who were mostly at university. Those who were currently employed, or in the neither studying nor employed group, were more alert to the need for ongoing interest in employment. They were more likely to mention undertaking qualification-related study to keep life interesting, or to allow them to undertake work in a different area. Fear of job loss (in 2009) was low.

Table 5.4: Reasons for the need to study or train more than once

Reason	Studying at 20 (*n* = 251) %	Employed at 20 (*n* = 114) %	Neither studying nor employed (*n* = 36) %
Gain more skills and experience within single career area/job type	56	42	40
Keep up with new developments in particular career/job	22	16	5
Keep life interesting/gain a broader outlook/I like learning	19	30	25
Gain job opportunities in different areas	18	25	35
Gain job opportunities in related career/job areas	17	14	10
Change jobs when I want to	13	16	20
Increase job status	7	9	10
Keep increasing amount of pay in same job	6	1	5
Other	6	1	10
Ability to change jobs if lose a job/get hurt on it	2	0	0
Not sure	1	1	0

Note: N = 401.

Those who expected to study for a qualification more than three times in their adult life were more likely to think they would need to do so to gain more skills and experience within a single career area, to keep life interesting and to keep up with new developments in their area.

Current employment status (employed full-time, part-time or not employed) was unrelated to views of how often one would need to study or train as an adult.

Discussion

Overall, this chapter shows how the traditional model where the end of school marked the end of formal study has given way to further study—of some sort—being part of the post-school experience for most young people making their path into adulthood. The majority of those who had studied post-school in this sample were at university, having gained the requisite entry qualification at school, or being able to use adult entry, bridging courses and a greater latitude on course entry than is likely to operate now. Most of those who were currently studying were positive about their study experiences, including support from teachers and the degree of challenge offered, and what they thought they were gaining from them. Those taking university courses were more positive about their courses than those taking certificate-level courses. Few students spent as many hours each week on their study as one would in a full-time job: not surprising, since two-thirds were also employed. Students at certificate level were more likely to be spending 11 hours or less on study a week, indicating that study may have a different role for their formation of their adult identity than those at university. However, although employment and loans appeared to be necessary to allow post-school study, 79% thought their course would provide value for money.

By age 20, 19% had already gained a post-school qualification, usually at certificate level, from courses that lasted less than a year. Most thought their course and qualification gave them skills and knowledge they were currently using, most often practical and specific to their work; less so in relation to teamwork, computer skills or written communication.

However, 11% had left a post-school course without completing it. While more thought they had made the right decision than not, a third of this group had a major regret related to study, cf. 13% of the young people overall.

The group who left a post-school course without completing it are particularly interesting because of similar links between not completing a post-school qualification course, and the factors which we found to be linked to early school leaving and leaving without NCEA Level 2 or Level 3. Many in this group were not bringing to their post-school study positive experiences of learning, or confidence in it. They were much more likely to need support for their learning—but at the same time, be less likely to have positive relations with their family, or extending friendships. Over half made the decision to quit the course without taking any advice; where they sought advice, they sought it from family rather than higher education staff, or friends. Quitting a course without gaining a qualification did not mean that they would not return to gain the qualification, or think of tackling another course. Most also saw some gains from their course, particularly general communication or social skills. However, it would seem that these young people were in need of more guidance around courses, and deeper learning approaches than they brought with them from school.

The small group of those who had regrets related to post-school study, feeling they had made some poor decisions, also had lower levels of learning skills.

By contrast, the group who changed their main course of post-school study (16%) were confident learners, well-equipped with what they brought from school and their approaches to learning, and family support. Most of these course changes were within undergraduate degrees, and had been easy to make.

The continuation of study post-school, which is rarely free, or as low-cost as school (70% of the young people at age 20 had a loan), raises some questions. Do we provide enough support for young people to make good decisions about the courses that will interest and develop them in ways that keep open or open doors for employment, further study and the ability to contribute to, and enjoy, life? Is every young person leaving school with the skills and knowledge to gain from post-school education, particularly those who leave without school qualification, or who have been disengaged in learning at school?

Seventy-one percent of the 20-year-olds expected to study or train for a qualification more than once in their adult life, with those solely employed or neither studying nor employed more likely to mention the need for ongoing interest. On the whole, qualifications were seen as ways to gain new knowledge and skills, rather than for pay or status reasons. This is consistent with the emphasis on opportunities for learning within employment that we found when we asked the young people about their current work (see Chapter 6). Overall, learning—not always in formal ways—continues to matter for many of the young people in this sample, but there are some who find it difficult, while drawn toward it; and others who continue to associate learning, particularly formal learning, with school, and their negative experiences there. Thus while the group who were neither studying nor employed at 20 were most likely to want to be doing something different, they were much more likely to mention employment rather than study. Some in this group simply wanted nothing more to do with learning, which they associated with school and formal study; others were interested in learning, but sought a different environment for it. The next chapter points to learning opportunities that were available through employment, but also raises some questions about their sufficiency.

6. Employment at age 20

Sixty-eight percent (*n* = 373) of the sample had employment at the age of 20. This includes 64% of those who were studying. Eighty-six percent of those who had employment had one job, but 11% had two jobs and one student had three (all casual). Those who were employed had not moved as far as those who were studying: 77% lived in the Wellington area.

In this chapter, we look at experiences of employment through the eyes of two groups: those who were employed without studying at the same time, and those who were employed while studying. The former were more likely to see their employment as their day-to-day reality, as well as the ground on which they are building their future; whereas students were more likely to regard their employment as the support for the study on which they were building their future.

These two groups are not completely synonymous with part-time or full-time work. While 81% of those who were employed had full-time work, 15% had part-time work and two percent, casual work. Three-quarters of the employed students had part-time work, nine percent had casual work but 14% worked full-time; there were 17 apprentices among the students, who were in full-time work.

How the 20-year-olds heard about their current job

Table 6.1 shows that friends and family were the most common means of hearing about the jobs held by the young people. Websites and non-newspaper advertisements were more likely to be mentioned by those who were also studying. The employed were more likely to have heard about their current job through someone at a previous job, or to cold call prospective employers.

Table 6.1: How 20-year-olds heard about their current jobs

Source	Employed (*n* = 113) %	Studying & employed (*n* = 160) %
Friends	29	28
Family	24	27
Career/job website	14	23
Cold called	12	8
Other	11	9
Through someone at previous job/study	11	5
Newspaper	7	3
Advertisement other than website or newspaper	4	8

Note: N = 273.

The prominence of family and friends in answers here, contrasting with the low proportions mentioning media and advertisements, raises some questions. It may be that many employers who have jobs open to 20-year-olds are not advertising widely, particularly if employers are small to medium companies, and seeking part-time employees. But it may also be the case that family and friends are keeping an eye out for jobs for the young person; or the fact that the job

is known to family and friends enables discussion of it and its suitability for the young person: that such a process is more likely to result in getting the job. Our questions were not focused on job search processes—young people may try a range of outlets before finding a job—but related to the job found. But the prominent role of family and friends here does indicate the importance of networks and support in finding work.

Jobs undertaken by 20-year-olds

We used a hybrid of Levels 1 and 2 of the Statistics New Zealand occupational classifications (Level 1 was too broad, and Level 2 too detailed) to categorise the jobs described to us by the young people. Table 6.2 shows a wider range of jobs among those solely employed than among students. Just over half the students had sales or hospitality jobs.

Table 6.2: Jobs undertaken by 20-year-olds[41]

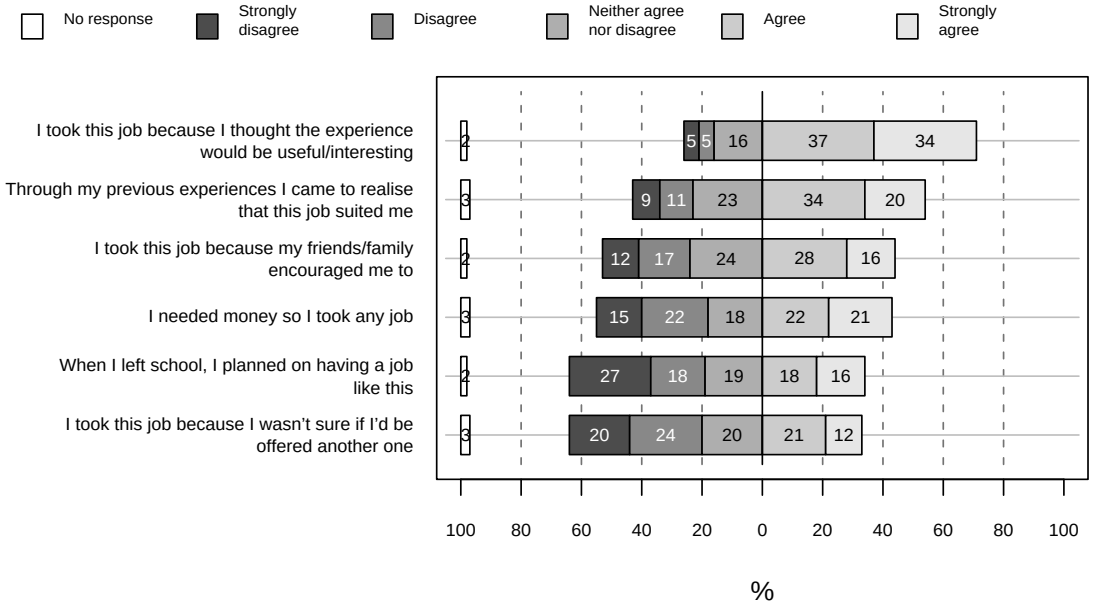
Source	Employed (*n* = 113) %	Studying & employed (*n* = 160) %
Office management/administration	18	9
Sales	18	29
Hospitality workers	14	23
Inquiry clerk/reception	13	6
Semi and unskilled work	12	4
Trades and technical workers	11	12
Managers, professional and technical	4	6
Carers and aides	4	5
Sports/personal service workers	4	5

Note: N = 273.

We asked the young people why they took their job. Figure 6.1 shows that most had more than one reason. Interest or usefulness was the main reason (71%). A default reason, or having planned for such a job when they left school, were least likely. Family and friends continue to figure as influences on decisions. Forty-two percent saw their job as a necessary means to the end of money, which makes other experiences and things possible.

[41] This gives details for the main job reported. Patterns for all jobs are similar.

Figure 6.1: Reasons for taking the current job of employed 20-year-olds



Note: N = 273.

There were some links between the reasons given. Those who had planned to have such a job when they left school were also more likely to say that previous job experiences had shown them that the work suited them, and to say that they thought the experience would be useful, and less likely to give reasons related to needing money, advice from friends and family or insecurity about being offered another job.

Taking advice from friends or family was more likely when young people took jobs because they needed money. However, such advice was not more likely to be mentioned in situations where the young person had taken a job because they were unsure whether another job would be offered them—a situation where one might have thought such advice would be sought.

Generally, those who had planned to have a job like the one they had were more positive than many about their job, other than in the area of pay. But it was not essential to have planned for a job to enjoy it, or to be aware of its opportunities for ongoing learning. Nor did planning to have such a job when one left school guarantee that, overall, one would feel that one was doing what one wanted to be doing—at age 20.

Sixty-one percent of those who had planned for a job like the one they had did agree they were doing what they wanted to be doing. Similar positive overall views were evident among those who had taken their current job because they thought the experience would be useful or interesting: 65% agreed they were doing what they wanted to be doing. This compares with 21% of those who said they had taken the job because they needed the money, saying that, overall, they were doing what they wanted to be doing, and similar low proportions for those who took a job because they were not sure they would be offered another.

Table 6.3 shows that most of the 20-year-olds had had their current job for a year or more, including 36% of the students. Those who were employed with apprenticeships were most likely to have been in their current jobs for three or more years (24%).

Table 6.3: Length of time in current main job for 20-year-olds

Length of time	Employment only (*n* = 113) %	Studying & employed (*n* = 160) %
Less than a year	39	36
One year and less than two	27	28
Two years and less than three	21	17
Three years and less than four	6	11
Four or more years	4	6

Note: N = 273.

Looking ahead, the proportion of those who thought they would be doing their current job in three years time was not high: 26% of those employed, and 18% of the employed students (in total 21% of those currently employed). Remaining in their current job was most likely for those with apprenticeships (71%), those in trades and technical work (61%) or managerial, professional or technical positions (47%).

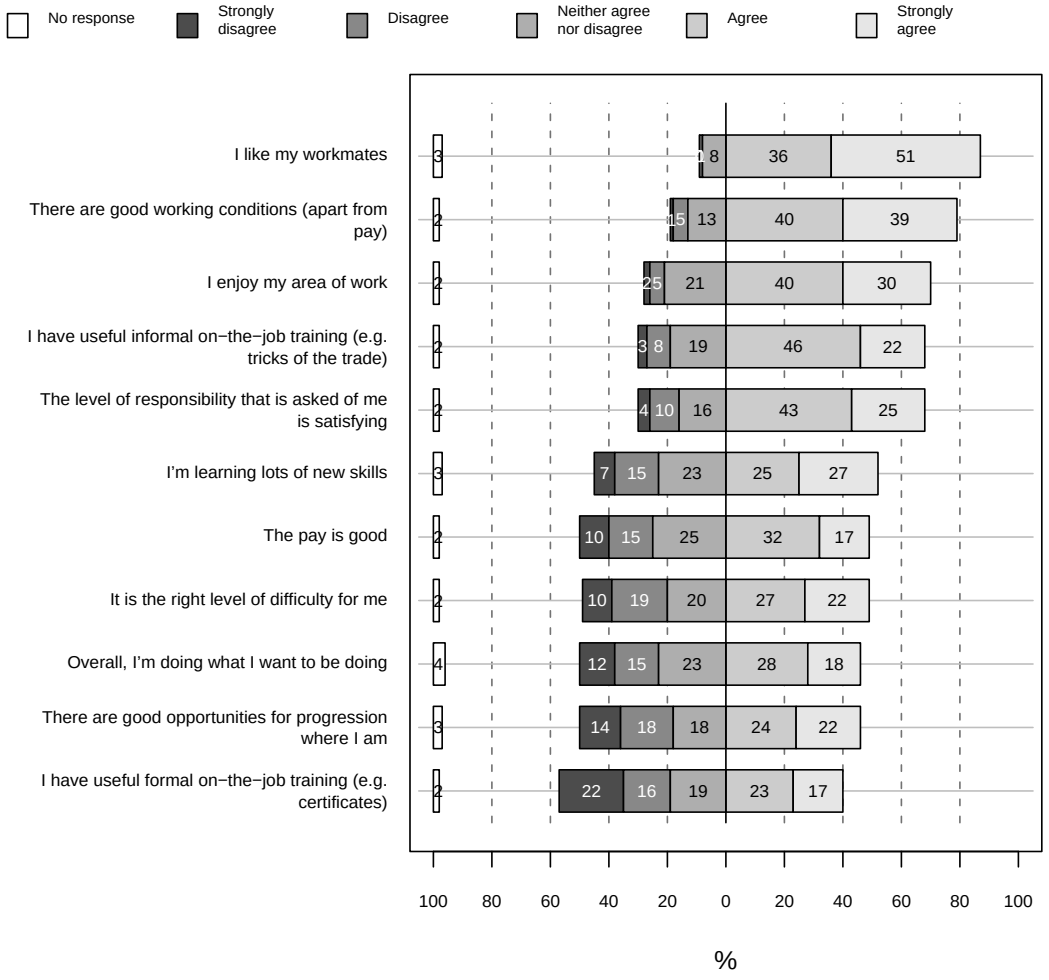
Staying in the current job for the next three years was also more likely (between 54 to 35%) for those who strongly agreed that they:

- overall were doing what they wanted to be doing
- had useful informal on-the-job training
- saw good opportunities for progression
- were learning lots of new skills
- sought their current job because previous work experience had taught them that this job would suit them
- found their current job was at the right level of difficulty for them
- had planned to have such a job
- found their current job had a satisfying level of responsibility.

Twenty-year-olds' views of their current workplace and work learning

Figure 6.2 shows that most of the 20-year-olds were positive about their workmates and working conditions, and enjoyed their area of work. In terms of learning, they were almost twice as likely to have useful informal on-the-job training (such as "learning the tricks of the trade") than to have useful formal on-the-job training (such as structured sessions or courses). Just over half thought they were learning lots of new skills. Just under half were doing what they wanted to be doing.

Figure 6.2: Employed 20-year-olds' views of their current workplace



Note: N = 273.

There were some differences in views of their current workplace between the students who were employed, and others who were employed. These differences mainly related to opportunities for learning and progression, and reflect some of the differences in the kind of employment each group had, with employed students being more likely to have sales and hospitality work. The differences:

- 64% of the employed thought they were learning lots of new skills, cf. 44% of the employed students
- 59% of the employed thought they had good opportunities for progression where they worked, cf. 37% of the employed students
- 48% of the employed thought they had useful formal on-the-job training, cf. 35% of the employed students.

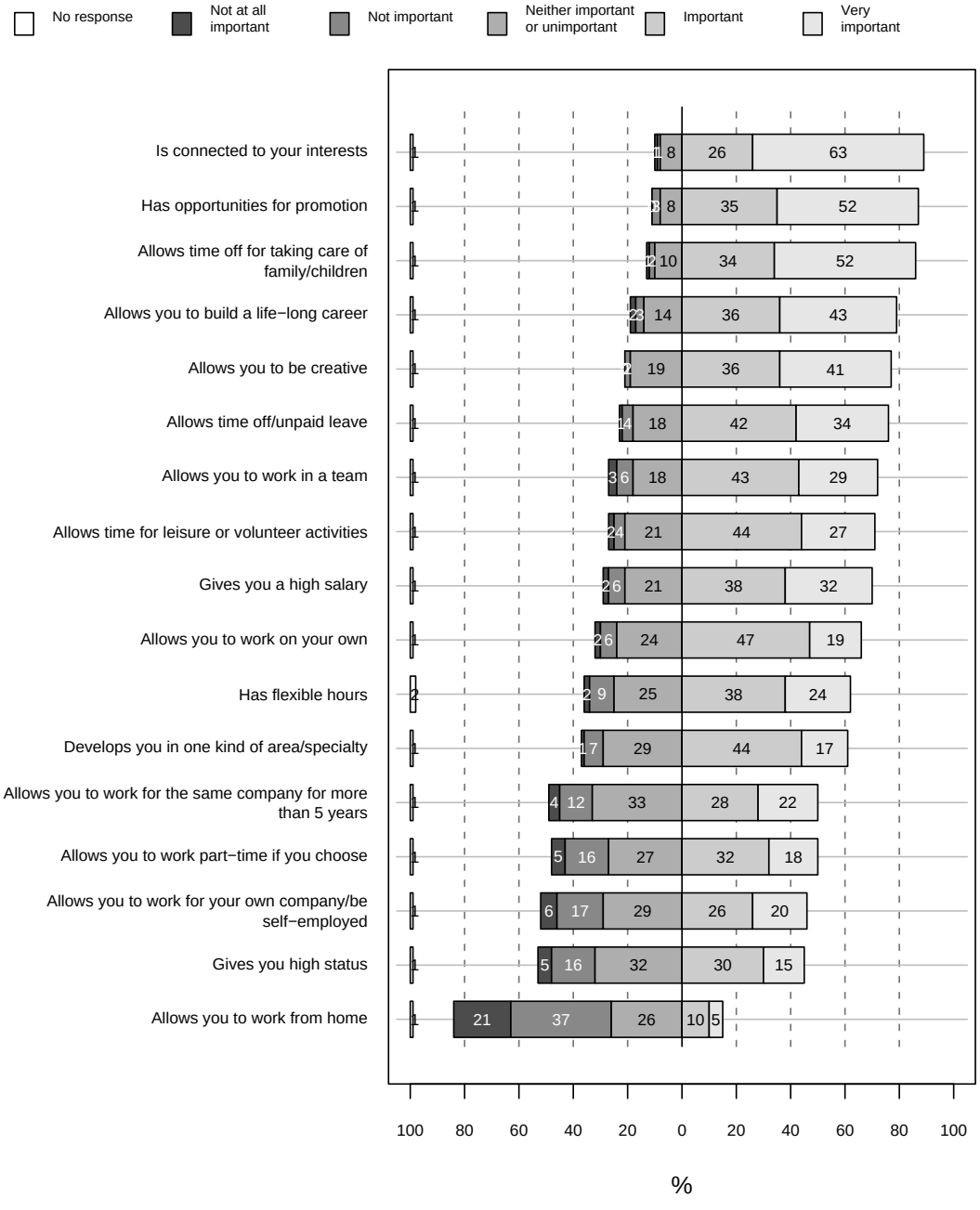
Those with apprenticeships were also more positive than other employed students (whose work was supporting their study rather than vice versa) about their jobs in terms of the aspects we asked about, but had similar views as other students in relation to pay, working conditions and workmates.

Attitudes to work

The previous section indicates that the 20-year-olds' current employment usually offered some enjoyment and a level of responsibility that was satisfying, but less in the way of learning, challenge (or the right level of difficulty), opportunities for progression and pay. These latter aspects did matter to the young adults.

Figure 6.3 shows that, ideally, jobs would connect to the young people's interests, build into a lifelong career, allow time off to take care of children, allow opportunities for creativity, pay well and allow a work–life balance. At age 20, interest was more neutral in relation to particular forms of working (eg, for the same company, part-time or from home), or in status, probably because few had family responsibilities, and their work experience was comparatively brief.

Figure 6.3: Components of the ideal job for 20-year-olds



Note: N = 401.

Interest in flexible hours, working from home and self-employment, and a job that gave high status was strongest among those neither studying nor employed—recall that this group included most of the parents in the study. Those studying were least interested in working for the same company for more than five years.

Views of a career

Table 6.4 compares age-16 and age-20 views of what a career is. The most marked changes are in the views that were categorised as fitting with an "emergent" view of careers. Vaughan (2008, p. 45) described this more recent conceptualisation of career as less tied to "traditional" ideas of stability and status, and "addressing future uncertainty at the level of the individual (eg, career portfolio construction and adaptability), the workplace (eg, outsourcing and global competition, new skill demands) and society and economy (eg, technology-driven changes, demands for constant innovation, and equity considerations)".

Emergent ideas about careers mattered more to the young people now than they did when they were 16 and at school. There was also more emphasis on on-the-job training, pay above the average wage, but less emphasis on status and having a university degree.[42]

Table 6.4: Views of career

	Statements provided to students	Agreement—at age 16 (*n* = 420) %	Agreement—at age 20 (*n* = 401) %
Traditional view of career	A job you can do well	80	75
	A job where you get promoted to higher positions at the same workplace	70	78
	A job	67	56
	The type of job which pays more than $35K a year (at age 20, $40K)	49	58
	A job with high status that other people regard as special or important	48	36
	A job that needs a university degree	42	31
	The same job in the same workplace for more than five years	38	38
	A job that needs on-the-job training	31	44
Emergent view of career	A qualification that you can keep building on with more qualifications and experience in the same area	70	85
	Being in paid work and having enough time for family, friends and leisure activities	60	79
	A qualification that enables you to travel and get work somewhere else	37	69
	Different kinds of jobs in different workplaces that use the same sorts of skills	32	59
	Several different jobs at any one time that relate to one broad career area	23	39
New item at age 20	A job you love		93

[42] This might be because at age 16 this question was asked of those still at school only; at age 20, the group includes some who were not at school at age 16, or who did not take part in the study at the age-16 phase, but rejoined it at 20. It may also be influenced by the characteristics of young people who left the study between ages 16 and 20.

Views of a *career* were generally not related to young people's current main activity. Those who were employed but not also studying were less likely to think that a career needed a university degree. Those who were in the neither studying nor employed group were more likely to think a career could consist of several different jobs that related to one broad career area.

Discussion

Clerical, service, trades and semi and unskilled work were among the main kinds of jobs held by the 20-year-olds. A minority said they had aimed at these jobs when they left school—and these included students, whose current jobs were more in the way of support for their study, than an end in themselves. While those who were in jobs they had planned to be in were more positive than many about their jobs, such planning was not essential to enjoyment, or thoughts that they were doing what they wanted to be doing, indicating how identification of jobs likely to suit changes with experience.

Most of the young people said they had heard about their current job through networks (family, friends, previous work colleagues), rather than employers' advertisements. Some young people will have wider or better informed networks, enhancing the likelihood of their finding satisfying work. Given the rising proportion of young adults who are experiencing unemployment, and difficulty finding work, it would be useful to know more about young adults' job-search processes, and how employers advertise or make known vacancies for this age group, and how they select among the young people who apply.

Interest and usefulness, and the suitability of the job for them as an individual were the two main reasons why the young people took the jobs they had. These indicate a less tight labour market than the one currently facing young adults—but these reasons also mesh with what the young people hoped to find in employment, as indicated in their perceptions of an ideal job. The ideal job for most would connect with interests, develop over time and allow them to have time with family, one of the other main hallmarks of adulthood.

Most of the 20-year-olds' current employment offered some enjoyment, a level of satisfying responsibility, but less in terms of ongoing development, and pay. Money was not insignificant to them: it allowed them to exercise independence, to go flatting, for example, or partner, or it supported their study.

Only 26% of those who were employed and not also studying thought they would be in their current job in three years time. Stability of job interest was most likely among those who were doing what they wanted to be doing, who had found good learning opportunities in their work and saw good opportunities for progression. The emphasis on learning within employment is interesting, since it was true for those who had not undertaken post-school formal study, as well as those who followed the post-school study route from school as a matter of course.

However, useful learning at work was much more likely to come informally than formally, and just over half thought they were learning new skills in their work. The proportions are higher among those who were employed without also studying. Just under half were doing what they wanted to be doing. So while at one level many of the young people appeared to have taken on one of the mantles of adulthood— employment—their employment was not necessarily developing them further. And opportunities for ongoing development did matter to the 20-year-olds.

7. Experiences of unemployment

Employment mattered to the young people, whether they had jobs that offered a path forward, or to support study, or that allowed them to pursue the sense of independence and security that the qualitative component of this age-20 phase of the Competent Learners study found underlying so much of what the young people were aiming to build (Patterson, 2011). Unemployment is also one of the key policy concerns relating to young people (Hansen, 2010), particularly as early experiences of unemployment may make it more likely that unemployment is experienced in (full) adulthood.

While only one of the young people in this study had spent most of their time between school and age 20 neither employed nor studying, 11% (n = 44) of the participants in the age-20 phase of the Competent Learners study had experienced some unemployment since they left school. We did not ask how long these periods of unemployment were; our data simply tell us that there has been at least one experience of being without work when being with work was the desired or usual experience.

Half of those who had experienced some unemployment since they left school were currently unemployed; and 11% were looking after their child. Twenty-one percent had full-time work. But few were studying, either at university or at other tertiary institutions.

Those who had experienced unemployment between leaving school and age 20 who were now in full-time work at the age of 20 were in a range of occupations. None were working in management, professional or technical jobs (but only five percent of the sample was, at the age of 20). Compared to others who were currently employed (this includes students), they were somewhat more likely to be employed as enquiry clerks/receptionists, or in semiskilled and unskilled work (the differences were not statistically significant, given the small numbers involved).

In this section, we look at any precursors that might signal the likelihood of unemployment at this stage, then at whether experience of unemployment since school was colouring current views, and what it might mean for future options.

The cross-tabulations we use in this chapter compare those who have experienced some unemployment since they left school, and those who have not (this includes the few who have not undertaken paid work in that period, and may not have been looking for it, particularly if they were able to study full-time).

Social characteristics

Family income and maternal qualification levels were the social characteristics associated with unemployment between the ages of 16 and 20 for this sample. Gender and ethnicity were not associated.

Unemployment between ages 16 and 20 was more likely if young people's families had had low incomes when they were aged 5 (50% of the group, cf. 23% of those who had not experienced unemployment), if their family financial situation had been difficult when they were aged 14 (39%, cf. 13% of those who had not experienced unemployment) and if they had come from low-income homes at 16. Eighteen percent had mothers with a senior school, tertiary or university qualification, cf. 43% of those who had not experienced unemployment.

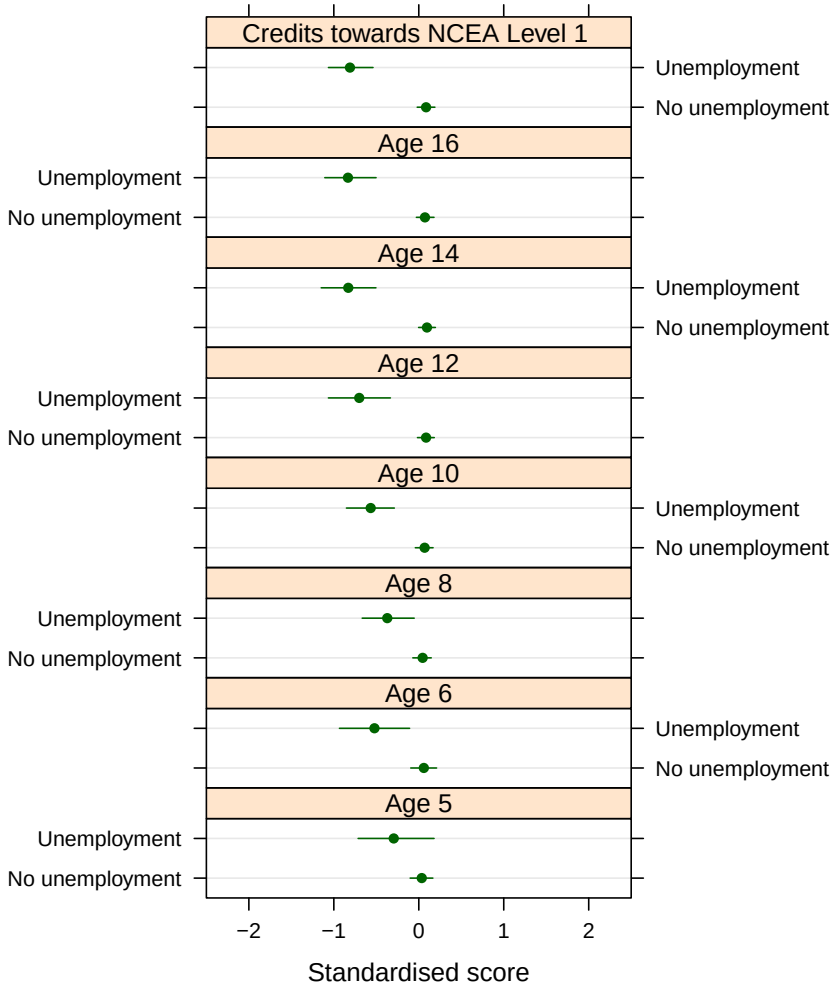
Links with previous competency levels

Figures 7.1 and 7.2 show that those who experienced some unemployment had lower average competency scores by age 8.

Figure 7.1: Experiences of unemployment since school and cognitive composite levels

Note: N = 401.

Figure 7.2: Experiences of unemployment since school and attitudinal composite levels



Note: N = 401.

Seventy percent of those who experienced some unemployment had no qualification or a NCEA Level 1 qualification, cf. 15% of those who did not experience unemployment.

Table 7.1: School qualification by unemployment between leaving school and age 20

Qualification	Never unemployed (*n* = 357) %	Some unemployment (*n* = 44) %
No completed NCEA/NQF qualification	4	36
NCEA Level 1/other Level 1 NQF	11	34
NCEA Level 2 /other Level 2 NQF	23	18
NCEA Level 3 /other Level 3 NQF	62	11
UE literacy and numeracy	58	14

Note: N = 401.

Looking *forward*, and using quartile performance at age 8 as our unit of analysis, we found some overrepresentation of those who had been in the lowest quartile then. Around 16–20% of the lowest quartiles on the measures at age 8 later experienced unemployment in their early adulthood, where this group was only 11% of the age-20 participants. Comparable proportions from the highest quartiles on the competency measures at age 8 were five percent or fewer. So

earlier competency levels give some indication, but they are not predictive: other aspects of experience and how individual identity occurs, along with opportunities, are also material as we see when we look at the information we have from the age-14 and age-16 phases of the study.

Age-14 variables

Experiencing unemployment between leaving school and age 20 was associated with lower levels of school engagement, confidence in the school environment and the use of internal markers to gauge learning progress. This group was more likely to have wanted more guidance on their subject choices. Fifty-two percent had low levels of educational motivation, cf. 26% of those who never experienced unemployment later. At age 14, this group was less likely to see themselves staying to school until the end of Year 13. Risky behaviour was more likely, as was parent–child friction (reported by parents) and lower levels of good family communication. There was no difference in relation to family support, however. This group was more likely to have been involved in bullying (as victim, bully or both) over at least two of the three study phases between ages 8 to 12. They reported more adverse events over the 12 months before our interview with them at age 14. Interest in electronic games or having no interests was more likely for those who had experienced unemployment since leaving school.

Age-16 variables

A similar pattern is also evident at age 16. Among those who had been at school then, lower scores were more likely among the group who experienced unemployment on our measures of school engagement, satisfaction with subject mix (most had subject mixes that fitted the vocational or contextual orientation subject clusters), absorption in learning, attitude to schoolwork and NCEA work. Attendance rates were lower. They were also more likely to have "standing out" values and friends who had risky behaviour, but less likely to have friends who extended them. While they were just as likely to have supportive families, these families were less inclusive of them in their day-to-day activities. They were less likely to be seen as happy or optimistic by their parents.

Forty-one percent of those who experienced unemployment left school before they were 17, cf. 11% of those who did not experience unemployment. On the one hand, some precursors to this early leaving are evident; on the other, this group has had more years beyond school, including looking for employment.

Age-20 perspectives

Those who had experienced unemployment were less likely to think it had been easy for them to move from school to what they were now doing (a view which may be coloured by what they are currently doing as well as memories of the actual move away from school); 36% thought it had been easy, cf. 61% of those who had not experienced unemployment. Working out what they wanted to do was the single most difficult thing about leaving school for this group. They were less likely to have had useful advice from family or from higher education staff in deciding what to do when they left school. School courses with a work component were more likely to be mentioned among this group as helping their decision than among those who had not experienced unemployment, and they were more likely to see career expos and opportunities to try out careers as an important form of advice for secondary students.

Going on to employment from school was just as likely for those who experienced unemployment as those who did not, but 61% of this group went on to non-university study, cf. four percent of those who had not experienced unemployment. Useful advice on courses did come from families for those who had experienced unemployment as for those who had not; but the latter were more likely to also cite advice from higher education staff.

Forty-four percent of those who experienced unemployment had gained a post-school qualification. These qualifications tended—as for their peers who had also completed a post-school qualification—to be Level 2–4 certificates—and 25% were not sure what qualification they had gained. All but one of these qualifications had been gained in a year or less. Unlike those who had also completed a qualification but had not experienced unemployment, gains from the qualification were most likely to be seen as practical skills, and less likely to be seen as written communication or English skills, study or computer skills.

Forty-two percent of those who experienced unemployment had left a course without completing it. Their reasons for leaving varied widely, with a mix of finding the course too difficult and not doing well on it; losing interest; not finding the course content or teaching enjoyable; and personal reasons. Over half who quit a course sought advice from family members, and 13% from higher education staff. General communication, social and practical skills were the main gains from these courses. A third thought they would return to complete their course, mainly to help them get work, but also for satisfaction. A third thought that quitting the course had not been the right thing for them to do.

Ministry of Education course data for 2008 show that nine percent of this group were studying for an undergraduate degree, two percent had a Level 4 certificate and 18% a Level 1–3 certificate, but most were not studying. In terms of our three lifelong learning factors, those who had experienced unemployment tended to have lower scores on our measure of disciplined learning approach, and higher scores for our measure of needing support to learn; but these differences were not statistically significant. They had much the same scores as those who had not experienced unemployment on our measure of strategic learning.

Those who had experienced unemployment were somewhat more likely to think they would expect to undertake study or training for a qualification three times or more (perhaps thinking of short courses), but less likely to see as a reason for doing so the need to keep up with developments in an employment area.

Their views of what a career was, and what they would value in work, were generally similar to others'. More in this group thought work that allowed them to be self-employed and work that gave high status was important—both of these may be related to experiences of not being selected for jobs.

Reasons for taking their present job among the 30% of this group who were currently employed (n = 13), were least likely to include that they had planned on such a job when they left school. They were more neutral than others who were employed about whether they enjoyed the area they were working in, and whether they had good working conditions, but they were more positive than their peers about the job allowing them to learn lots of new skills.

Current happiness levels were associated with ever experiencing unemployment between school and age 20: only five percent of those who were currently very happy with their general situation had ever experienced unemployment; while 43% of those who were currently unhappy with their situation had done so. Depression was more likely to be experienced by those who had experienced unemployment—and conversely, optimism, less likely to be felt. Thirty-two percent of this group had thought of suicide once or more (mostly once), cf. 19% of those who had not experienced unemployment.

This group overlaps with the currently neither studying nor employed group, so there are similarities in relation to views of values, and current experiences. Of note here is that among this group there is more experience over the past year of loss of friends, family break-ups, shifting to live with a different parent, health problems, not having enough money, risky behaviour and not having enough freedom compared with those who have not experienced unemployment. This group was more likely to give neutral views about the importance to them of doing well at work or study, having a good sense of humour or being good looking.

They were also somewhat more likely to have risky behaviour, and family pressure, and less likely to experience extending friendships. They were no more likely than others to have a major regret relating to their activities and decisions since they left school, but if they did, it was more likely to be related to employment. Looking ahead, they were just as likely as others to think it important to have goals, and to have definite goals for the next three to four years. Their goals were more likely to be about work, or leisure activities, and less likely to be about travel. Seventy percent of this group would rather be doing something else than their current activity, and their main interest would be work. They were less likely to think that their current activity was related to a school subject, activity or interest out of school, but more likely to see it related to voluntary work.

Loans and credit cards were less likely among those who had experienced unemployment, but they were just as likely as others to have an overdraft. They were less likely to save on a regular basis, and less likely to think they were in control of their current financial situation most or all of the time. Their views about the importance of planning ahead were the same as others'—though they were more convinced about the importance of planning ahead for retirement.

Experience of unemployment was not linked to views of the importance of keeping up to date with current events, though those who had experienced it were less likely to make use of Internet sources to get news. Voting in the last general election was unrelated to experience of unemployment, although those who had such experience who had not voted were more likely to say they had not voted because they did not care who won the election.

Discussion

Unemployment between school and age 20 was linked to previous competency levels, as far back as age 10, and most starkly seen in the high proportion of this group who had left school without qualifications, or only NCEA Level 1. This group shows disengagement with school from age 14, risky behaviour, fewer leisure interests or extending friendships and more experience of adverse events. In terms of protective factors, they did, however, have similar levels of family support and solid friendships to others. Though school did not engage them, they had not found moving on from school easy. They often did not have a clear idea of what they wanted to do when they left school, and that seems to have followed through into a high rate of noncompletion of post-school courses. Where they had undertaken study, it was mostly at the certificate level, with less advice from higher education staff on their choices. Almost a quarter were not sure what qualification they had gained from their post-school course.

Most of those who had experienced unemployment were focused on employment, rather than further study. Where they were currently employed, they seemed most positive about the opportunities to learn new skills, suggesting that workplace learning may appeal more than formal study. That raises the question of whether we have the "widespread opportunities to combine workplace experiences with education" and the "tightly knit safety nets for those at risk" that the OECD identified among its key aspects of successful transition to initial working life (OECD, 2003, pp. 12–13). It also raises the question of how to develop career interests, or interests that can be associated with particular study and work, well before the end of school, which is one of the focuses of the current guidance to schools on career advice.

The importance of the policy concern with youth unemployment is underscored here by the associations with unhappiness, depression, thoughts (or more) of suicide and greater experiences of adverse events.

8. Young mothers

New Zealand has the second highest teenage birth rate in the developed world. There are risks associated with entering into motherhood—one of the hallmarks of adulthood for women[43]—too early, in terms of greater likelihood of poverty, mental health difficulties and negative outcomes for children. It can be difficult to disentangle these effects from circumstances that contributed to adolescent pregnancy, including perceptions of the options available (Collins, 2009).

Twenty of the young women (10%) were mothers at age 20. In 2009, 11 of the 20 were full-time with their child at home, three had part-time work, three were unemployed and one each was either working full-time, working and attending a non-university tertiary course or attending a non-university tertiary course.

Even with this small number, we see some statistically significant differences between this group and others. Forty percent had left school without a qualification, as had 35% of their own mothers. Comparable figures for young women who were not mothers in this sample were five percent without a school qualification, and 10% whose mothers did not have a qualification. Thirty-seven percent of the young women who left school before the age of 17 were mothers at 20, cf. six percent of those who left school at age 17 or 18.

Ministry of Education 2008 data show that 17 of the young mothers undertook some study since they left school, and six had gained a qualification. Five of the group had undertaken study but not completed it (these included both young women with no qualification and those with NCEA Level 3), and two had taken nonformal courses (one with no qualification, and one with NCEA Level 1). Five had gained a Level 1–3 certificate, and one a Level 4 certificate. Four were studying for a Level 1–3 certificate.

Thirty percent of the mothers were Māori or Pasifika, cf. 11% of other young women. Only a quarter had come from homes that came into our category of a comfortable financial situation when they were age 14, cf. 58% of other young women.

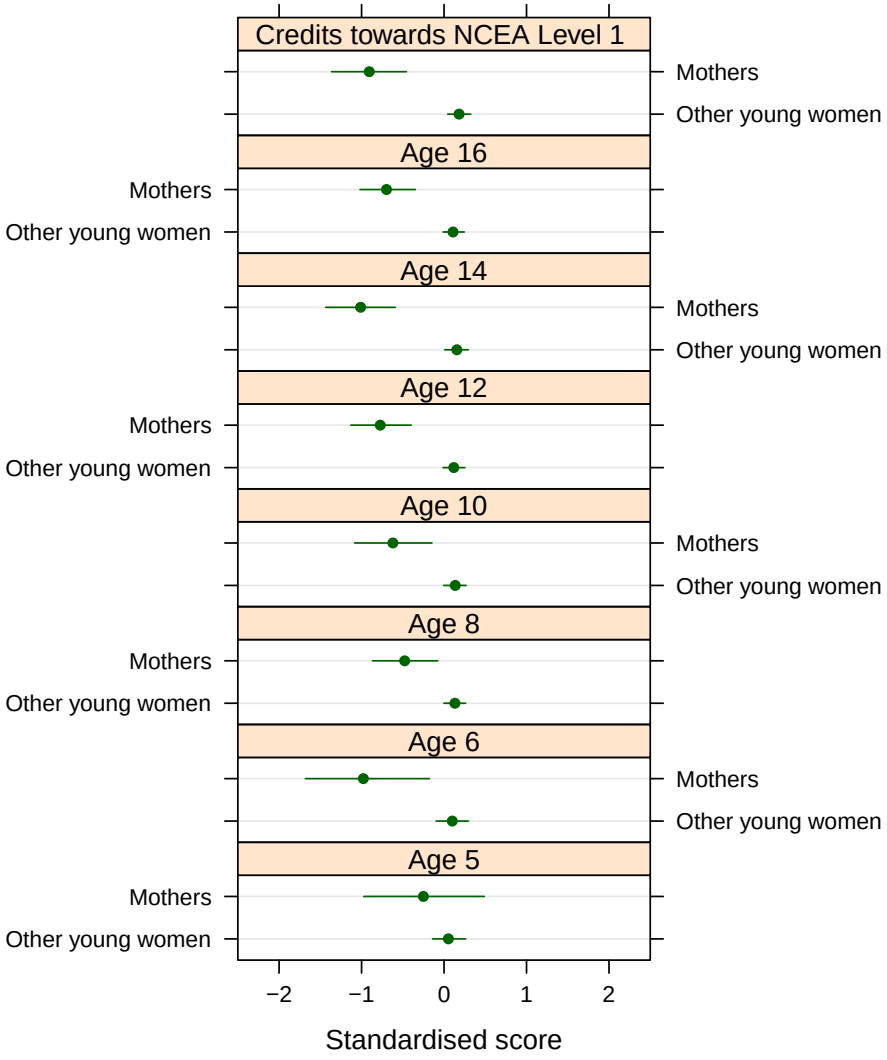
Prior competency levels

Low scores on our competency measures at earlier ages did not mean that a young woman would also become a young mother. But the likelihood was greater: 21% of the lowest quartile for our cognitive composite measure at age 12 became mothers by 20, cf. nine percent of those in the mid-quartiles, and two percent of those in the highest quartile. A similar trend is evident in relation to our attitudinal composite measure.

Looking backwards, Figure 8.1 shows differences in the average cognitive competency score for those who became mothers by the age of 20, compared with other young women in the study, from around the age of 6.

[43] It is not so long ago that motherhood was the prime source of adult identity for women, following marriage, and the median age for giving birth in 1975 was 25.

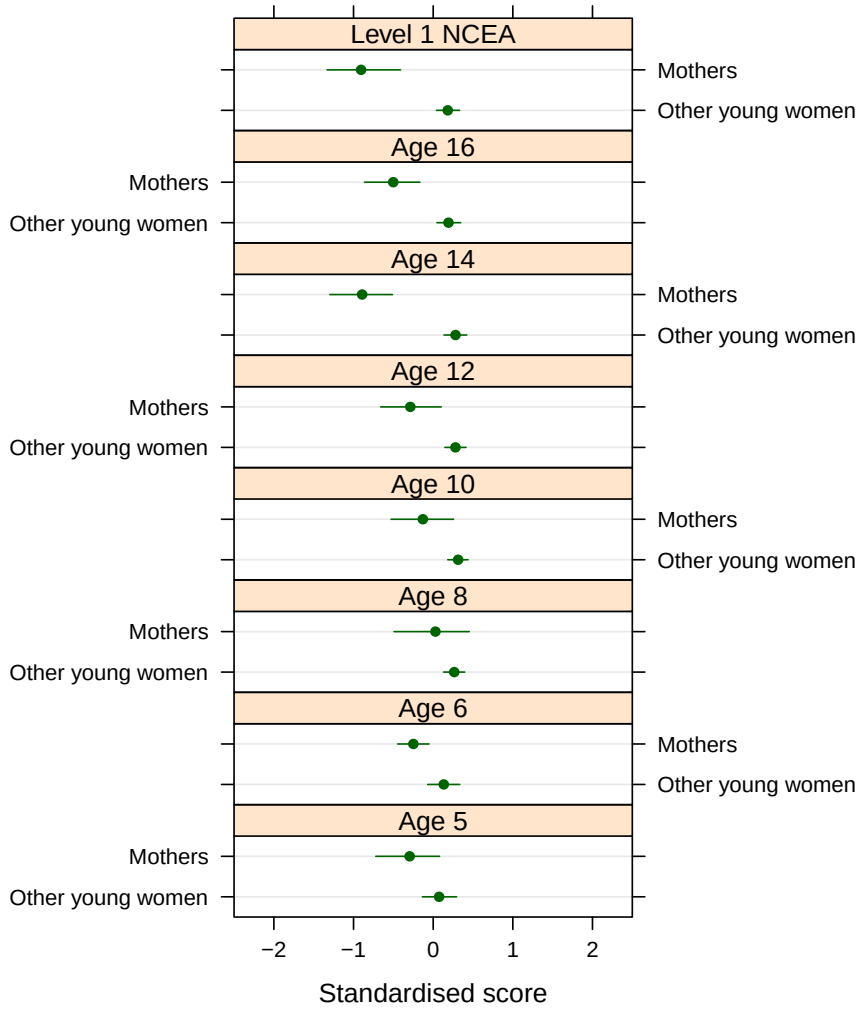
Figure 8.1: Young motherhood and average cognitive competency composite scores



Note: N = 205.

Average scores for the attitudinal composite competency start to diverge markedly from age 12.

Figure 8.2: Young motherhood and average attitudinal competency composite scores



Note: N = 205.

Age-14 experiences and relationships linked to young motherhood

The young mothers were more likely to have had higher levels of risky behaviour (including having sex), and friends with risky behaviour, and higher levels of family pressure and lower levels of good family communication, when they were 14. They were more likely to have had some experience of bullying during the ages 10–14 study phases. They had lower levels of reading enjoyment over the ages 8–14 study phases, and higher levels of television watching over the same period. They were more likely to fit within our "anchored" value set, which had a somewhat greater emphasis than the "anchored and achieving" value set on being with their family, and as adults, having a happy family life, and somewhat less emphasis on having an interesting job or good education. They were just as likely as other young women to be in the "standing out" value cluster. Thus there were two main sets of values among this group: one focused around family and family relationships; the other around having money, friends, clothes and an important job.

There were trends indicating lower school engagement and lower levels of use of internal markers to gauge progress, but these were not statistically significant. At this age, those who became mothers were just as likely as other young women to see themselves staying to school until the end of Year 13, but they had lower motivation levels.

Age-16 experiences and relationships linked to young motherhood

Risky behaviour—their own and their friends—continued to be higher among this group at age 16. They were less likely to report solid or extending friendships. But relations with their family were no more problematic now than they were for other young women.

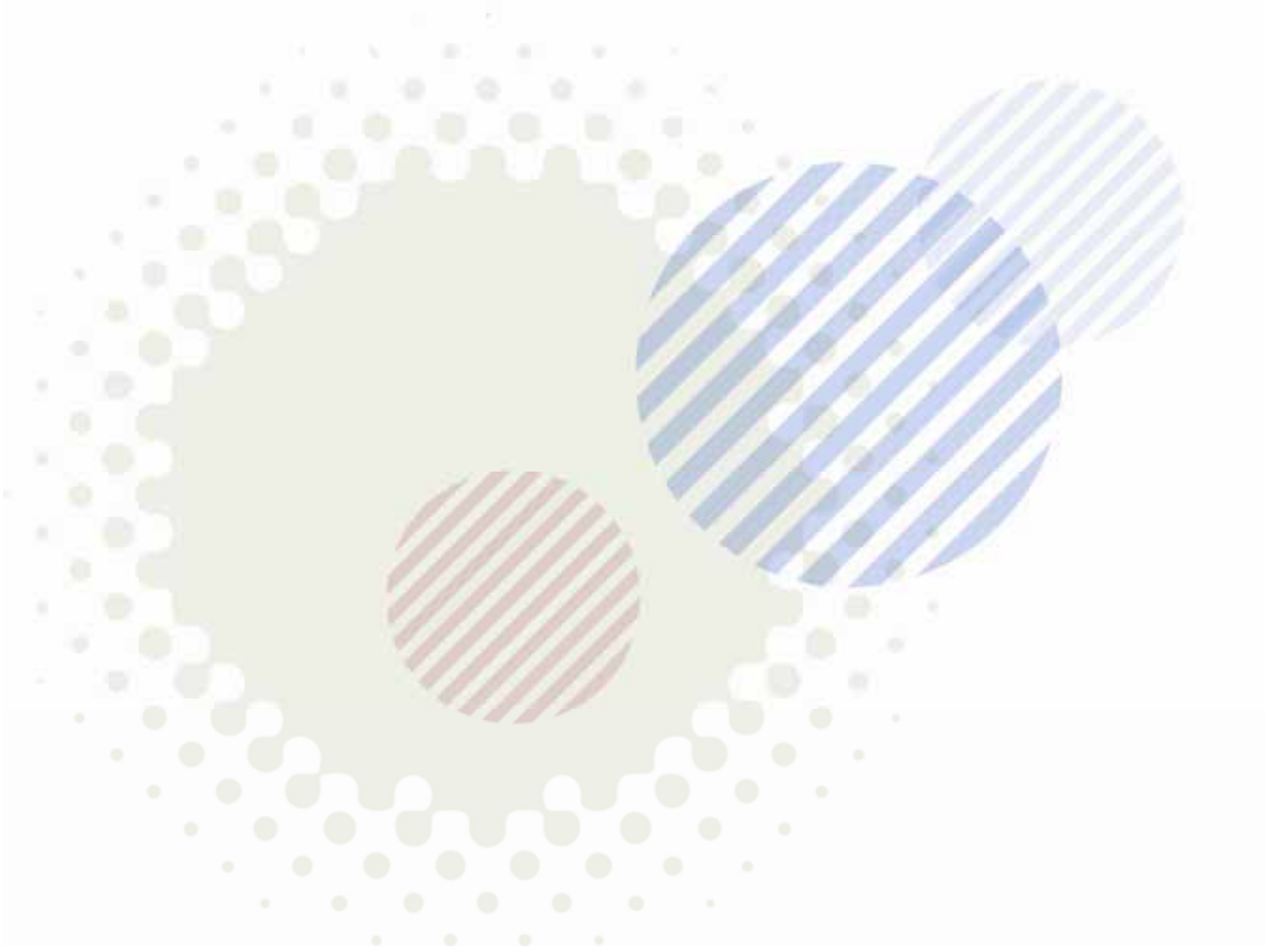
Thirty-five percent of this group were no longer at school at age 16. Views of school and how long they would stay at school were no different for those who remained at school from other young women. Those who became young mothers were more likely to have been undertaking a contextually oriented or a vocationally oriented subject mix.

Age-20 experiences and relationships linked to young motherhood

There are scant differences evident between the experiences and views of those who were mothers at 20 and young women who were not. Although 40% of the young mothers reported some unemployment since they left school, the young mothers did not resemble others in the group who have experienced some unemployment in some respects. They were no less likely than other young women to be optimistic or happy, and no more likely to feel depressed. Their lifelong learning disposition patterns were also similar to those of other young women.

Discussion

Both early motherhood and unemployment are seen as risk factors for the development of a secure pathway into adulthood, through employment and study. Both the young mothers and those who had known unemployment since they left school had higher rates of noncompletion of study undertaken post-school, and less current employment. Most (but not all) of the young people in these groups left school with low qualification levels, presaged by earlier lower average competency levels. Both groups also engaged more in risky behaviour in early and mid-adolescence, with concomitant tensions in their relations with their parents in early adolescence. But the young mothers had not been so clearly disengaged with school as those who experienced unemployment between school and age 20. Their mental health and their lifelong learning approaches were much the same as other young women in the study. Perhaps this is because some were particularly oriented toward family; and earlier tensions with family seem to have dissipated and they seemed to have as much support and involvement with family as other young women. Such support is important to the resilience of young mothers (Collins, 2009). An orientation toward family, where family offers support and a child offers purpose, also provided the means to develop a positive adult identity, one less dependent on winning employment, a way of establishing oneself as worthwhile without the qualifications others have. The qualitative component of the age-20 phase also shows that the purpose offered by having children can also endow a sense of responsibility, and therefore attention to improving employment prospects.



Current experiences

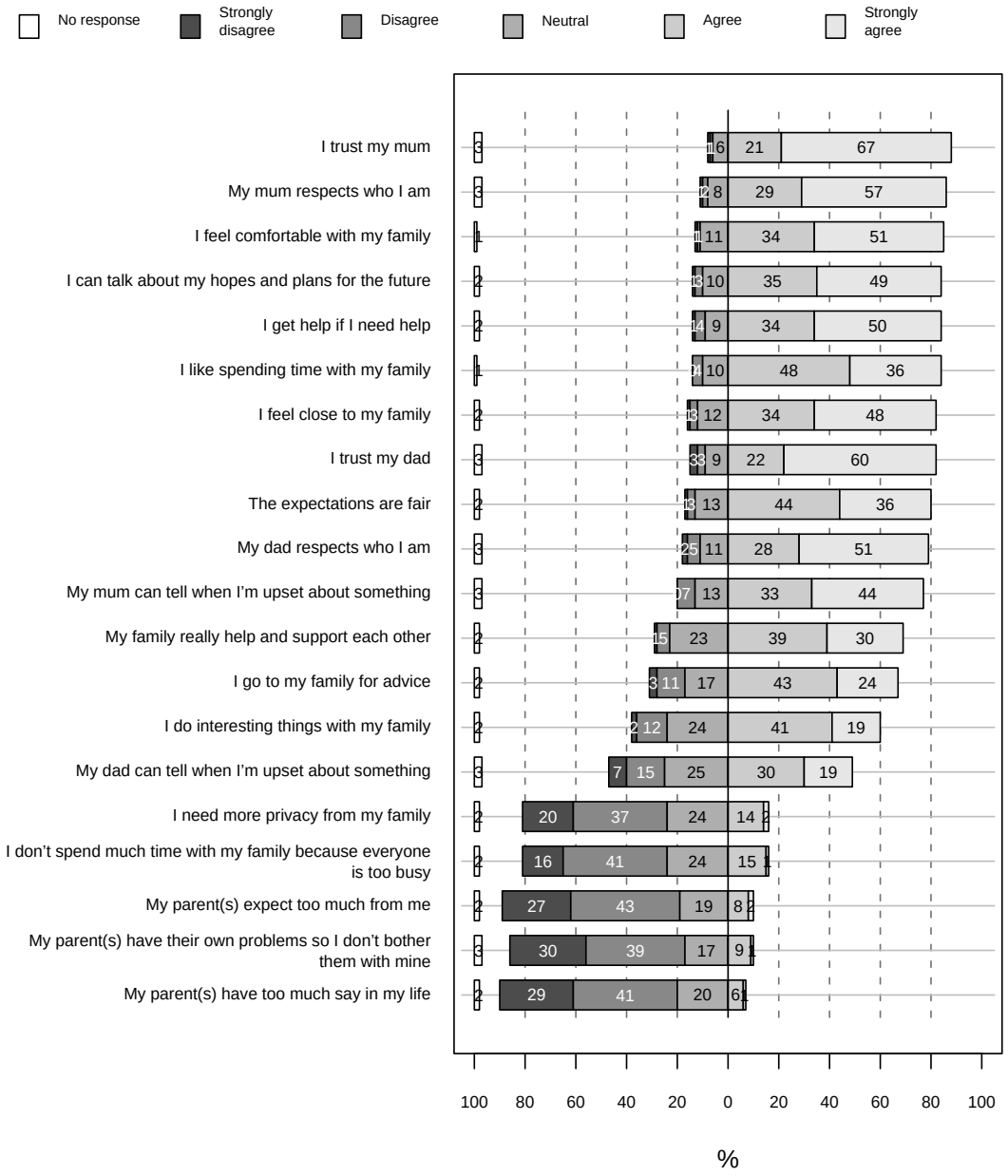
9. Relationships, values, experiences and looking ahead

In this chapter we describe first the 20-year-olds' reports of their relationships with family and friends, and their living arrangements. Next, we turn to their values, the things that were important to them, followed by their reports of what they enjoyed doing with their leisure, including Internet use; and their accounts of a range of experiences over the previous 12 months: friendship, love and support, risk behaviours, negative experiences and experiences of emotional difficulty. We touch on their interest in current affairs and voting. Finally, we describe their financial situation and views of goals.

Family

Figure 9.1 shows that the participants in the age-20 phase of the Competent Learners study were largely positive about their relations with their parents. Indeed, there were higher levels of strong agreement with the items we asked about relations with family at age 20 than at age 16, perhaps because independence no longer needed to be asserted between home and school. Around a third gave neutral or negative views of their family as a source of advice, help and support; and for around a fifth, there were some issues evident in terms of expectations or attention.

Figure 9.1: Twenty-year-old views of their relations with their families

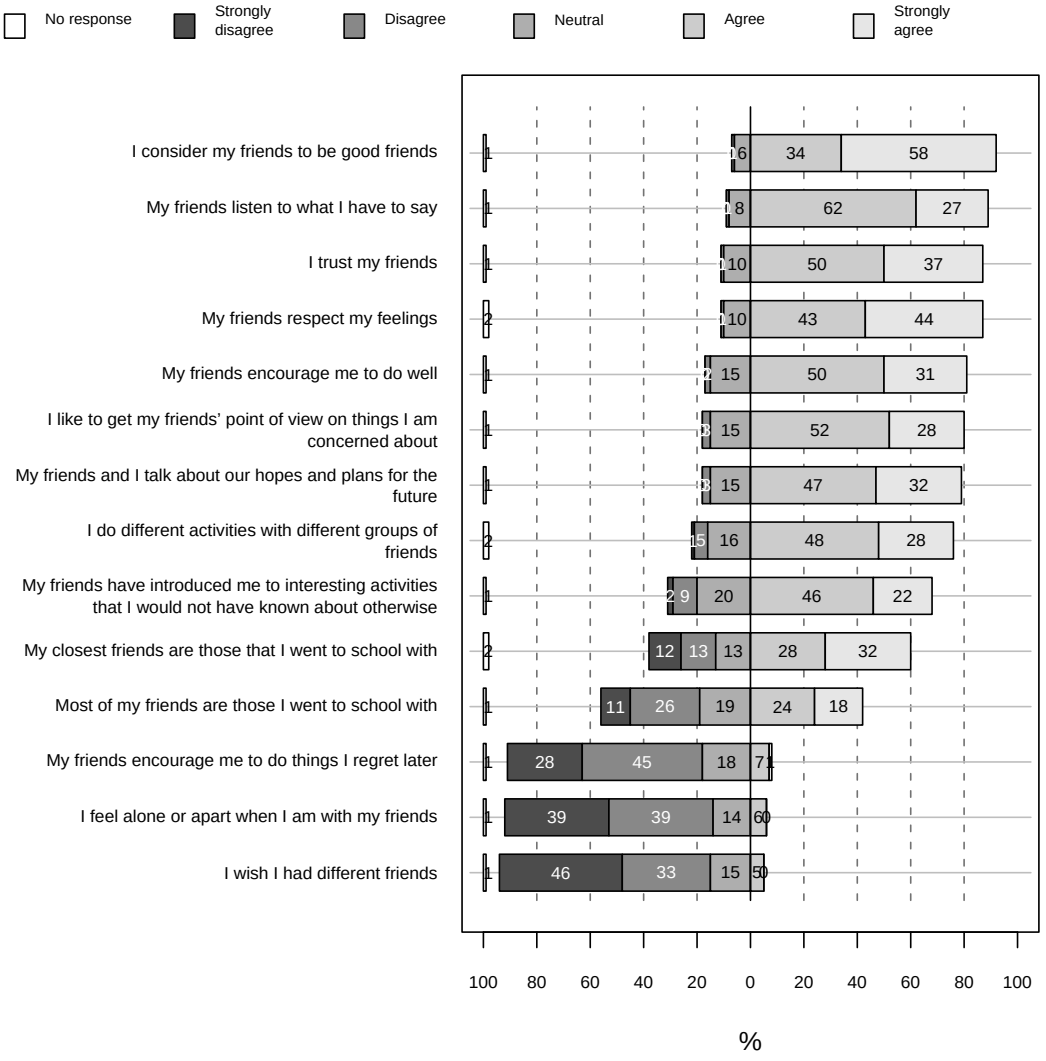


Note: N = 401.

Friendships

Sixty percent of the 20-year-olds' closest friends had come from school, and 42% said that most of their friends had continued from school (bearing in mind that many had left school only two years previously). On the whole, views of friendships had not changed as much from age 16 as had their views—and relationships—with parents. There were increases since age 16 in talk about future hopes and plans, and being introduced by friends to new and interesting activities. Figure 9.2 shows that most of the young people felt they had good friends, whom they trusted.

Figure 9.2: Twenty-year-olds' views of their friendships



Note: N = 401.

Living arrangements

Fifty-seven percent of the 20-year-olds continued to live with their families. Twenty percent were living with flatmates and 17% with friends. Eleven percent (n = 46) were with a partner. Just under half of these had been living with their partner for less than a year, and a third for one or two years. Seventeen percent of those with partners had been living with them for at least three years. Two percent lived alone. One percent boarded. Three percent had other living arrangements.

Students were most likely to be flatting, and least likely to be living with a partner (seven percent, cf. 21% of the employed, and 14% of those neither studying nor employed). Those who were neither studying nor employed were most likely to be living with family (78%). Few in this sample were living in student hostels (two percent)—probably because most were not in their first university year, and many were attending university in their home town.

Table 9.1 shows that all the young people could think of at least one good point about their current living arrangements, usually mentioning several, and 14% could not think of any not-so-good aspects of their living arrangements. Cost was important, as were location, living space and a sense of freedom or independence.

Table 9.1: Good points about 20-year-olds' living arrangements

Good point	(*n* = 401) %
Low cost	69
Location	54
Living space	53
Freedom/independence	45
Social gains	36
Being with family	36
Division of labour/sharing chores	34
Other	10
Being with partner	10
Being away from family	6

Those living with their family were most likely to mention low cost, but least likely to mention freedom or independence, location or social gains as good points about their living arrangements.

Location, difficult relationships, lack of privacy, cost and the quality of living space were the aspects most likely to be mentioned as bad points about living arrangements.

Table 9.2: Bad points about 20-year-olds' living arrangements

Bad point	(*n* = 401) %
Location	19
Other	19
Disharmony/difficult relationships	19
Lack of privacy	16
Cost	15
Quality of living space	15
Being with family	8
Being away from family	6
Isolation	5
Not being with partner	1

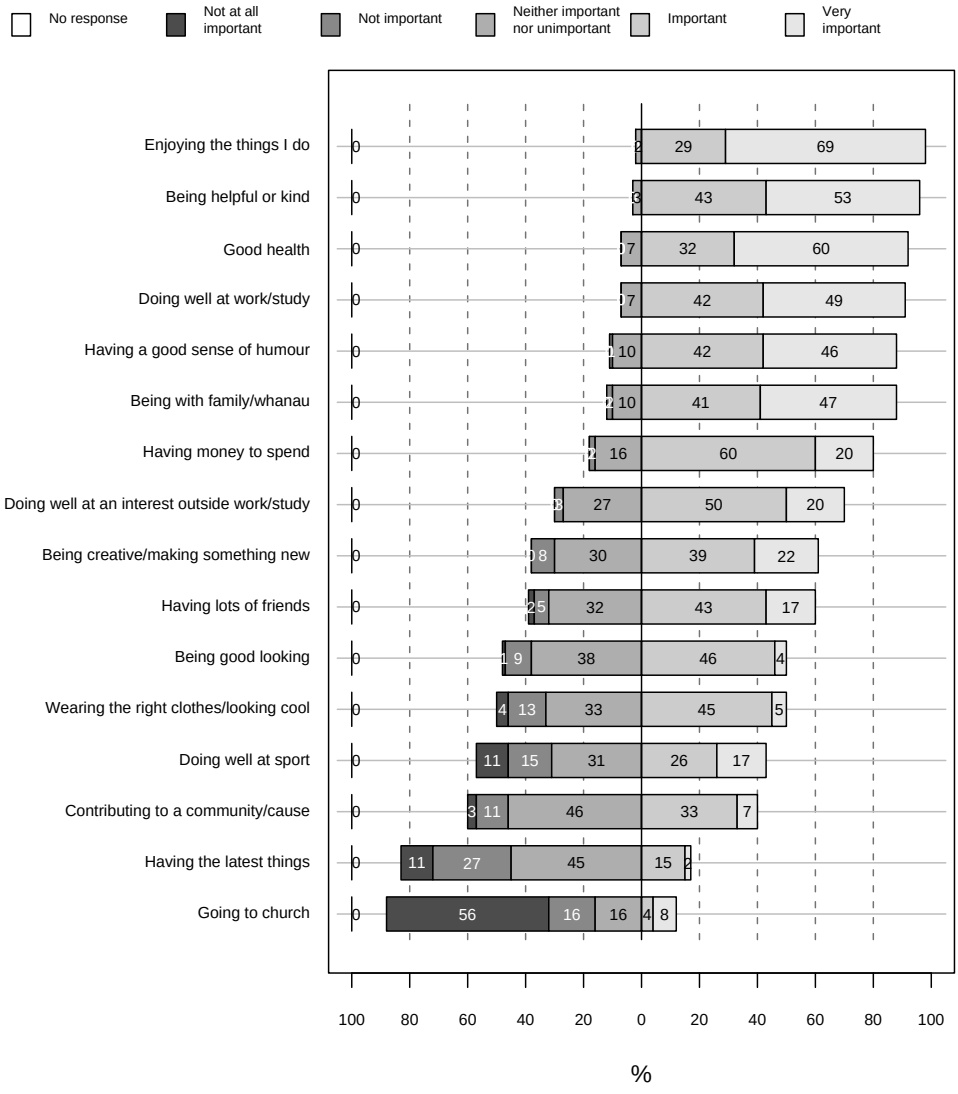
Just over half of those (*n* = 74) who mentioned disharmony as a negative aspect of their current living arrangement experienced it only occasionally; but around a third experienced it on one or two days a week, and nine percent, on most days. Conflict was somewhat more likely at least once or twice a week if the young people lived at home (49% of these experienced these levels of conflict).

Values

At age 20, the young people gave more weight than they had as adolescents to enjoying what they did, being with their family, being helpful or kind, having a sense of humour or doing well at an interest beyond study or work. Forty percent

thought it important or very important to contribute to a community or cause. Half thought it important or very important to be good looking or look cool, but only 17% thought it important or very important to have the latest things.

Figure 9.3: Values of 20-year-olds



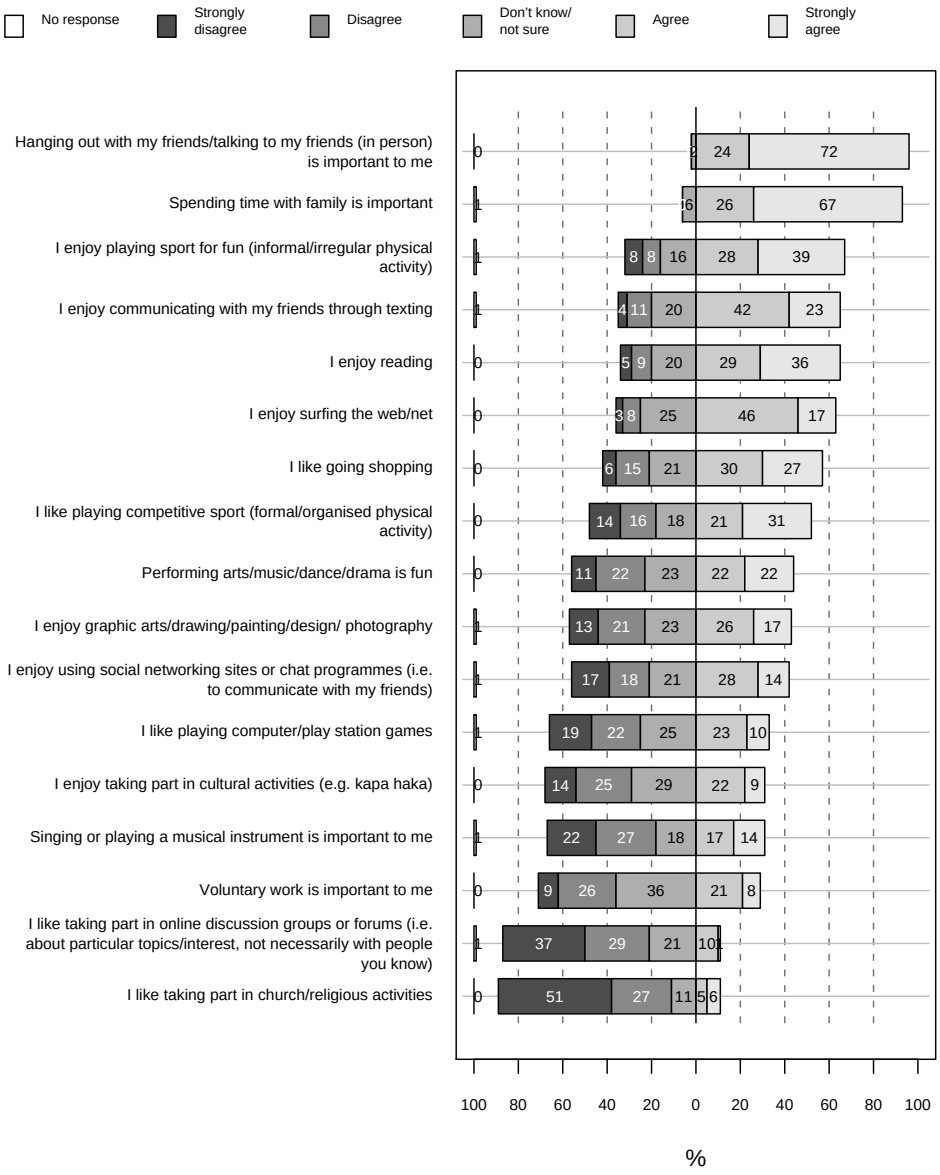
Note: N = 401.

Leisure activities

The importance of both friends and family is apparent when we look at what the 20-year-olds enjoyed in their leisure time. Enjoyment of reading was mentioned a little more than we expected, by around two-thirds—about the same as playing sport for fun. Voluntary work,[44] cultural activities and church or religious activities were not important to most.

[44] This could be seen to contrast with the 40 percent who said it was important to contribute to a community or cause—it may be that voluntary work was seen as a definite ongoing commitment of time where contribution can be more variable. It would be interesting to understand more about how young people understand "contribution", "community" and "voluntary work", and what this might mean for organisations and projects dependent on ongoing commitments.

Figure 9.4: Leisure activities enjoyed by 20-year-olds



Note: N = 401.

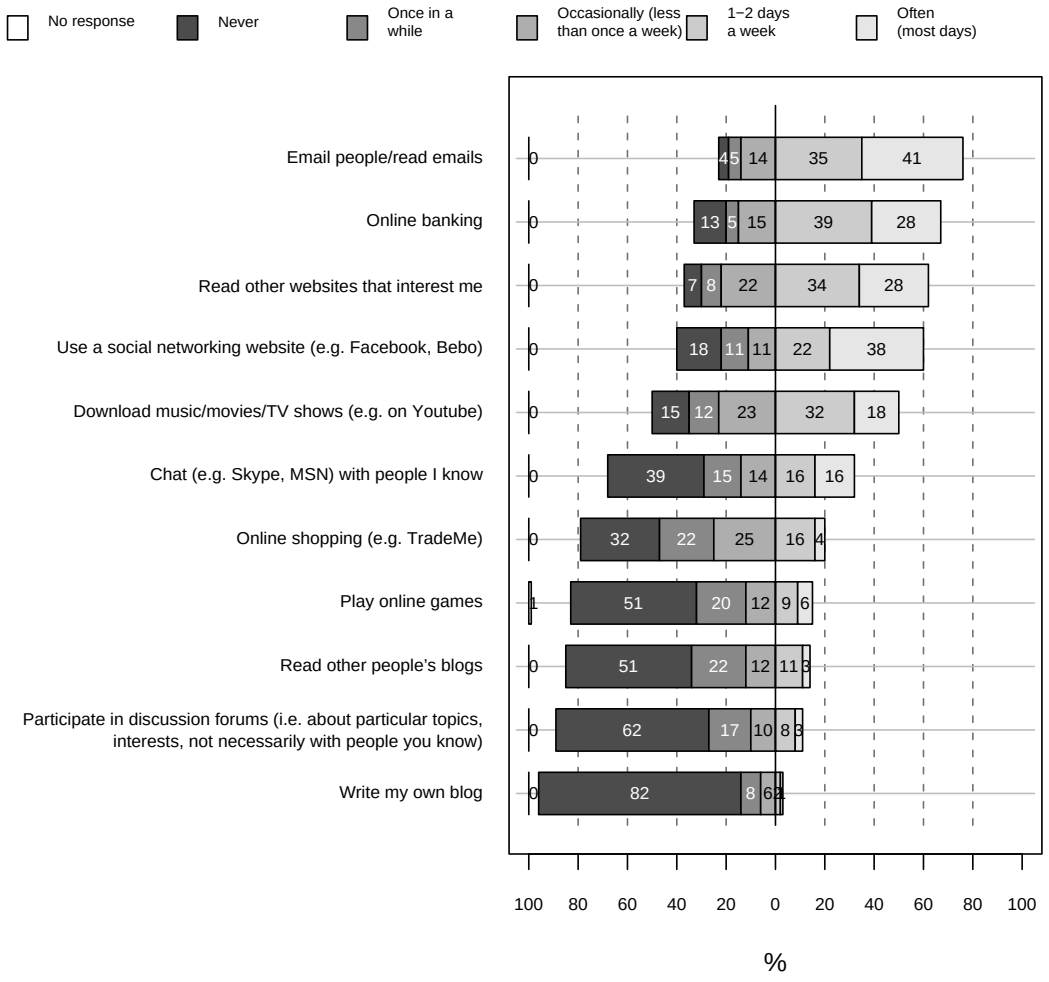
In terms of the 20-year-olds' current main activity, there were few marked differences. Enjoyment of reading was highest among those studying (74%, cf. 54% of the employed, and 47% of those neither studying nor employed). Cultural activities were enjoyed most among those who were neither studying nor employed; and this group was also most inclined to think that voluntary work was important (39%, cf. 23% of the employed). Social networks and chatrooms were most enjoyed by those studying.

Enjoyment of reading has been a key variable linked to competency levels in the Competent Learners study. Two-thirds of the Competent Learners @ 20 sample enjoyed reading fiction, 60% reading magazines and 38% reading nonfiction. Only 34% said they enjoyed reading a daily newspaper. Reference material was mentioned by 16%, 13% mentioned (particular) websites, five percent, instruction manuals and five percent, comics. Although reading was enjoyed as a whole less by those who were neither studying nor employed, the kinds of material they reported reading were much the same as those who were studying or solely employed, and in fact somewhat more of this group mentioned daily newspapers and instruction manuals. However, when we later asked a direct question about the frequency of newspaper reading, the patterns were much the same for those neither studying nor employed, studying or solely employed.

Internet use

Web surfing was a common enjoyment among the 20-year-olds. The Internet was also used on most days by over a third for email and social networking. But Figure 9.5 shows that other uses were less common than one might suspect from the frequent talk of a "digital generation" (most of this sample started to use computers by age 8). Perhaps this reflects the cost of broadband access.

Figure 9.5: Internet use



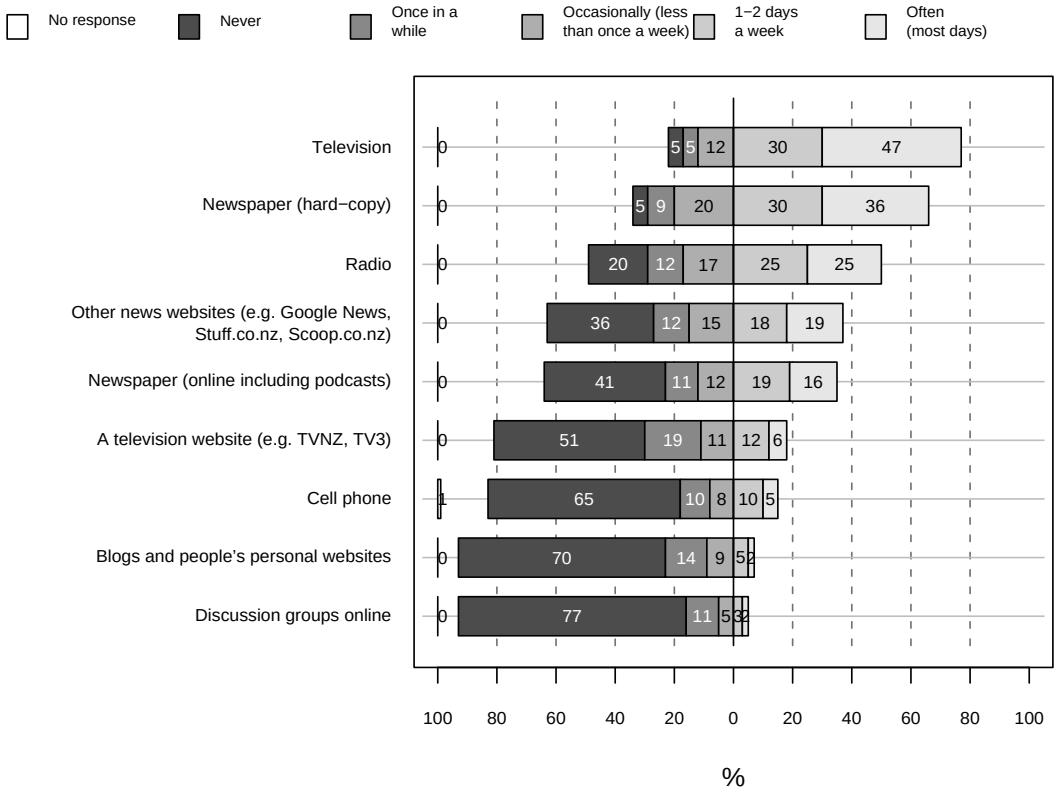
Note: N = 401.

Although students were the most frequent participants in social networking and email, there was more blog authorship among those who were neither studying nor employed. However, the latter group was less likely to read websites of interest.

Keeping up with current events and voting

We asked whether the 20-year-olds kept up with current events and had voted in recent elections because these activities could indicate levels of awareness of a wider context for their own lives. Just under three-quarters of this sample thought it was important or very important to keep up to date with current events. Their main sources of news were television (on most days, 47% watched TV news and six percent used a TV website), followed by newspapers in hard copy (36%) or online (16%), and radio (25%). Other websites were looked at often by 19% of the young people. Most did not use blogs or online discussion groups to keep current with news.

Figure 9.6: Sources of information on current events



Note: N = 401.

Seventy-six percent of the 20-year-olds had voted in the 2008 general election, which saw a change of government. They largely voted because they thought they should (41% of those who voted), or it was their right to vote (37%). Only 32% voted because they (also) cared who won the election. Of those who did not vote, 32% did not care who got in, 21% said they did not know who to vote for, six percent said they did not like any party or candidate and four percent felt their vote would make no difference.

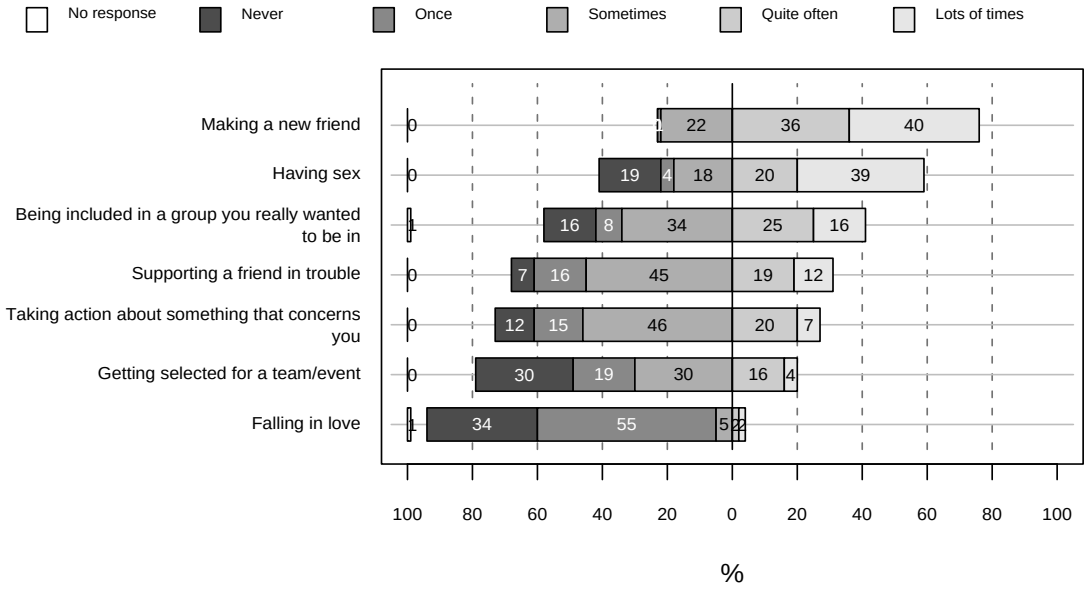
Voting was less common among the neither studying nor employed (56%); when they did vote, they were more likely to do so because it was their right to vote, and less likely because they thought they should. Those who were employed and did not vote were most likely to say they did not vote because they did not care who won the election.

Thirty-two percent had also voted in the 2007 local government elections. Unlike the general elections, voting patterns were the same across all three groups in terms of age-20 current activity—perhaps because only a minority took an interest.

Experiences

As in previous phases, we asked about a wide range of things that people can experience, to see what the study participants had done or come up against. Figure 9.7 shows that making new friends was common. Two-thirds had fallen in love over the past year—most of them just once; and most had had sex at least once in the year. Only 12% had never taken action over something that concerned them over the past year, and only seven percent had never supported a friend in trouble.

Figure 9.7: Friendships, love and support over the past year



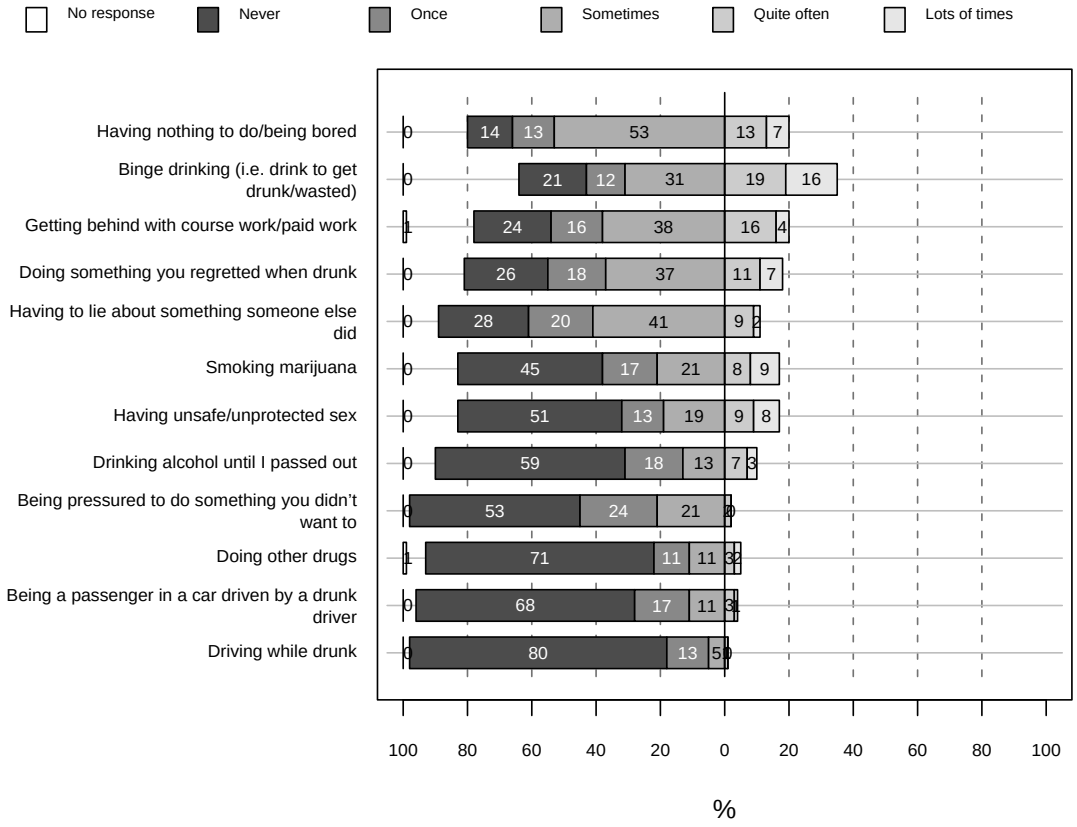
Note: N = 401.

"Risk" behaviours

We asked some questions related to experiences of sex, alcohol and drug use and getting behind in work or study. We termed these "risk behaviours" in earlier phases of the study since early experience of sex, alcohol and drug use are associated with lower student engagement in school, and as we have seen in this report, with pathways from school that can be difficult to find or maintain. In these questions, our emphasis is not so much on sexual or alcohol experience per se—these are, after all, among the experiences that form adulthood, and which are legal. Our emphasis is related to the post-school expectations of greater independence, greater ability to exercise choice and make decisions. The risk therefore associated with, say, sexual experience and drinking experience, is to that ability to make good choices, or make decisions consistent with what is important to a person, either because thinking becomes unclear, or one has given way without being persuaded. Because the study has shown how important it is to have interests, for the development of competencies and positive learning identities, we also see as a risk for adult development the experience of boredom, and lack of meaningful options for activity.

Figure 9.8 shows that the young people were most likely to take care in relation to the combination of drinking while driving (the subject of media campaigns for some years); they also exercised care in relation to drug use. Most were also careful in respect to the other activities we asked about. Binge drinking and doing something later regretted while drunk was not uncommon. Few had never got behind in work or study, and fewer had never been bored or felt they had nothing to do.

Figure 9.8: Risk behaviours at 20 over the past year

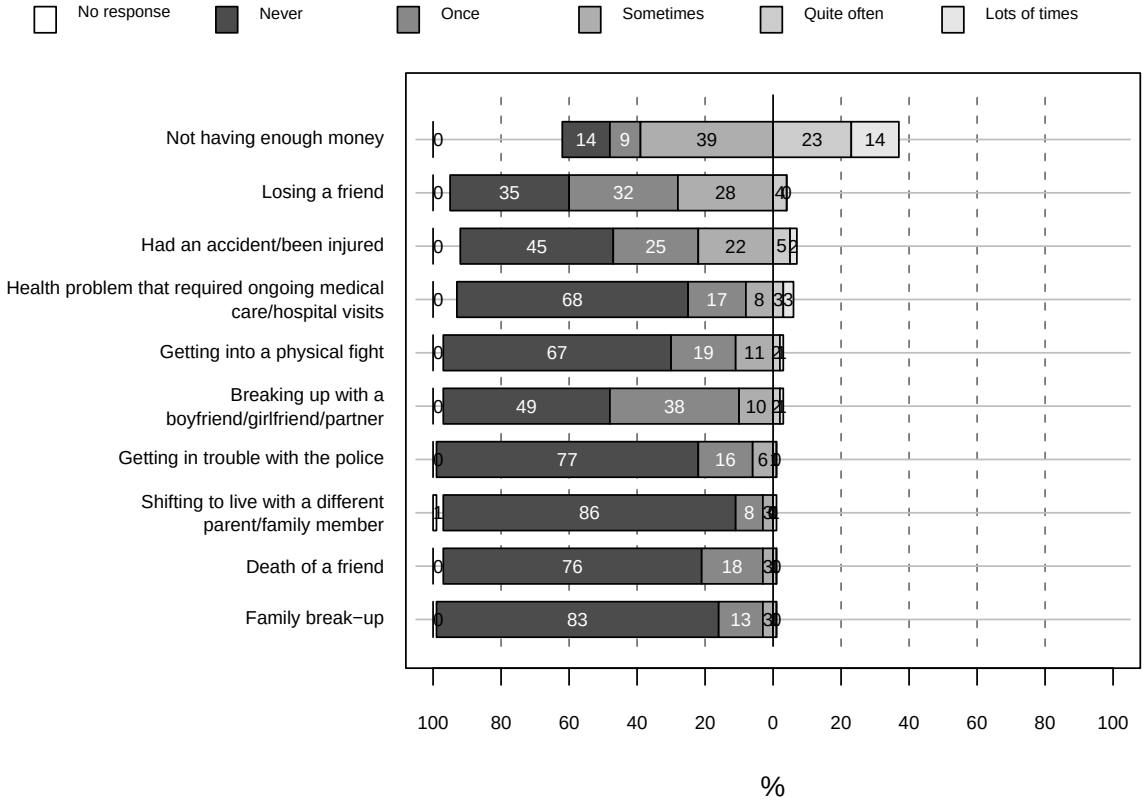


Note: N = 401.

As one would expect, those living with partners were overrepresented among those who had sex lots of times. Frequency of unprotected sex was also higher among those who lived with partners, but about the same proportion of those living with partners had never had unprotected sex over the past year, as those not living with partners. Seventeen percent had had sex when they did not want to: the patterns were the same whether people lived with a partner or not.

While most of the 20-year-olds had some experiences that took them beyond everyday control, such as doing something they regretted when drunk, Figure 9.9 shows that most had not got into trouble. Around a third had experienced at least one physical fight. Ill health needed attention for around a third. Thirty-seven percent had experienced not having enough money quite often or more.

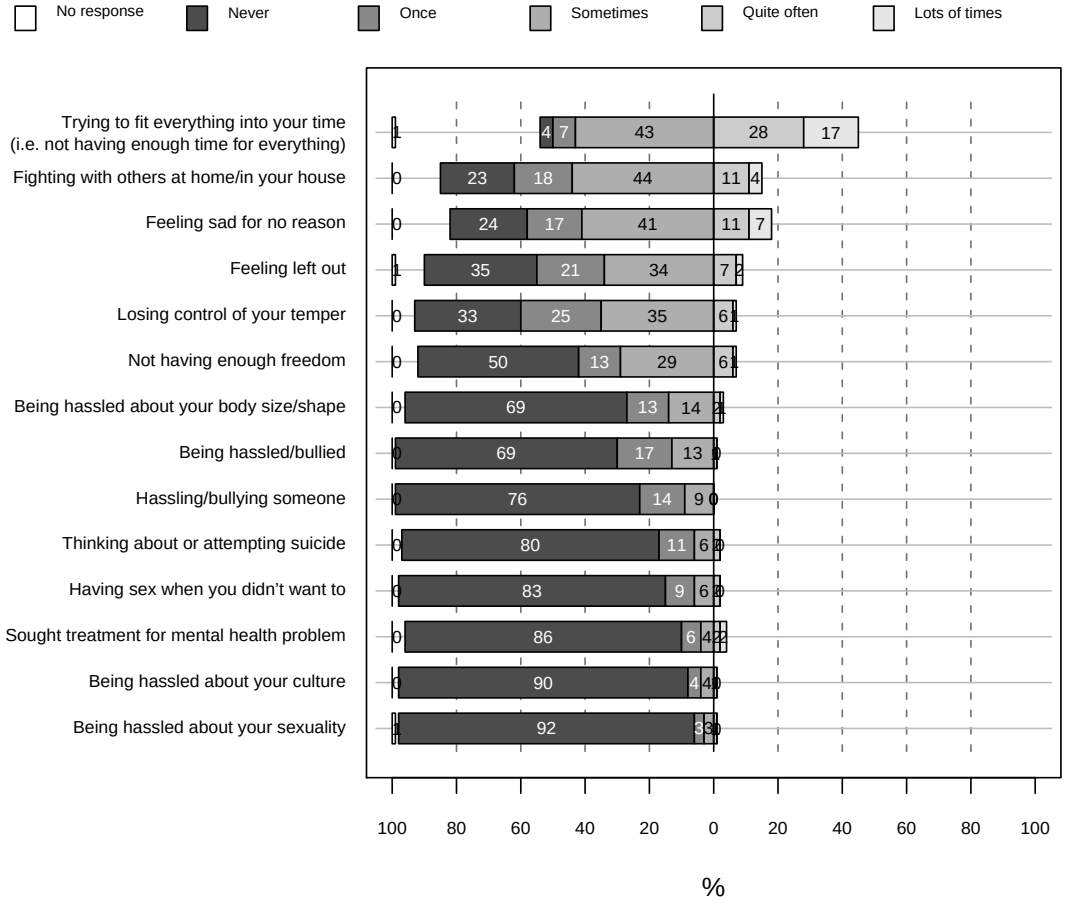
Figure 9.9: Negative experiences over the past year



Note: N = 401.

Not having time for everything was a frequent experience. Figure 9.10 shows that half the young adults felt they did not have enough freedom in their lives. It was reasonably common to feel sad for no reason or feel left out at least once over the past year. Being hassled about body size or shape was more common than being hassled over culture or sexuality in this group. Fourteen percent had sought treatment for a mental health problem at least once in the past year.

Figure 9.10: Experiences of emotional difficulty over the past year



Note: N = 401.

Finances

Seventy percent of the 20-year-olds were using financial resources other than their own. Seventy percent had a loan (84% of these were student loans, 13% were bank loans, four percent were loans from a private financial company and two percent, from a family member). Thirty percent had an overdraft with their bank, and 30% a credit card.

Those neither studying nor employed were least likely to have a credit card (eight percent) or a loan (39%); a third did have an overdraft. A fifth of this group owed money on a student loan, as did 38% of the students and 27% of the employed. The latter were most likely to have a bank loan (19%, cf. 11% of the neither studying nor employed, and four percent of the students).

Half those who had a loan or overdraft were fairly or very comfortable about the money they owed, and another 25% were neutral. Twenty-three percent were not comfortable about the money they owed. A slightly lower proportion of those who owed money felt in control of their current financial situation all the time than those who did not have a loan or overdraft (16%, cf. 23%).

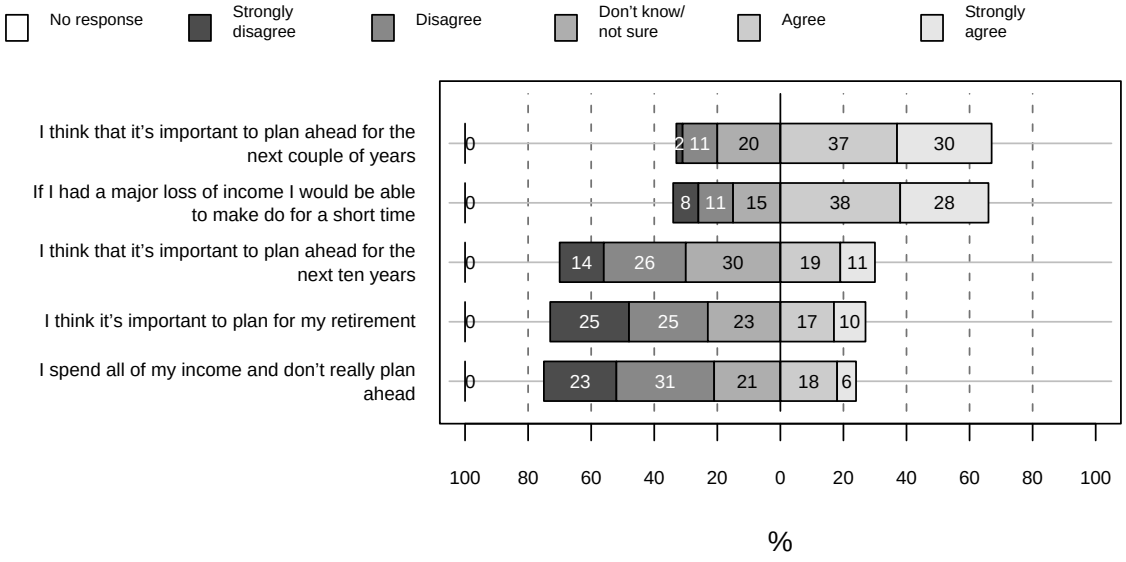
Sixty percent of the 20-year-olds felt they were in control of their current financial situation most or all of the time, 31% said it varied, eight percent said they were out of control of it most of the time and one percent, all of the time. A quarter said they spent all of their income and didn't really plan ahead. Those who were neither studying nor employed were less likely to feel they were in control of their current financial situation (36%).

But though many of the young people had a loan, many also saved money. Thirty-nine percent saved money on a regular basis. A third saved money only when they needed to make a large or important purchase. Thirteen percent said they did not earn enough money to save and 12% that it was hard to control their spending in order to save. Three percent felt they did not need to save money. Again, those who were neither studying nor employed were less likely to save on a regular basis (17%).

Saving on a regular basis was related to how much control the 20-year-olds felt about their financial situation: the more control, the more likely it was that they would save on a regular basis (the two are related, and it is not clear from these data whether it is the ability to save that supports a sense of control, or vice versa).

Figure 9.11 shows that most of the 20-year-olds did have some sense of the importance of planning ahead, though not as far as the next 10 years, or retirement (though retirement seemed to have a little more presence in relation to planning than the next 10 years).

Figure 9.11: Financial planning of 20-year-olds



Note: N = 401.

The neither studying nor employed group—who felt least in control of their money and who were not earning money—were more likely to say they spent all their income and did not really plan ahead (33%), and that they would not be able to make do for a bit if they had a major income loss (36%, cf. 23% of the employed, and 16% of students). Yet they were just as likely to think it was important to plan ahead, and even more so than others in terms of retirement (53%). Indeed, there was no relationship between how much the 20-year-olds felt in control of their money, or whether they saved money on a regular basis, and how important they thought it was to plan.

Thirty-four percent of the 20-year-olds said there was something major or important that they had decided not to do because of financial constraints. Travel headed the list of things that these young people had decided they could not afford (64% of those saying they had not done something because of financial constraints). Study was mentioned by 15%, moving from home by 14%, buying a big item by 16% and pursuing a leisure activity by 14%.

Financial constraints were felt in relation to study more by the employed (29%) and the neither studying nor employed (36%). Students mentioned travel more (73% of those who said they had not done something important to them because of financial constraints, cf. 52% of the employed, and 36% of the neither studying nor employed). Moving from home was most mentioned by the latter (27%).

Goals, decision making and planning

Forty-four percent of the sample (*n* = 178) said they were currently making or about to make a big decision. Most of these decisions would be about study (48%), work (29%), living arrangements (27%) or travel (20%). Financial decisions were mentioned by nine percent. Money (more of it) would be most likely to influence their decision (44%), followed by more information (24%) and support from their family (23%) or friends (17%).

Most of the 20-year-olds had some definite goals for the next three years: 91% of students, and 75% of the employed and neither studying nor employed. The areas of these goals are shown in Table 9.3. Students' goals were focused mainly on study (likely to be qualification completion). This did not seem to be an exclusive goal—there was also interest in work and travel. Those who were employed were focused mainly on study, work or travel, with some interest in living arrangements and financial matters. Those who were neither studying nor employed were focused on work, study—and more than others, family (probably reflecting the higher proportion of parents and those living at home in this group).

Table 9.3: Twenty-year-olds' goals for the next three years

Area of goal	Studying at 20 (*n* = 228) %	Employed at 20 (*n* = 86) %	Neither studying nor employed (*n* = 27) %
Study	82	41	44
Work	41	45	63
Travel	31	37	15
Living arrangements	11	19	11
Financial	11	21	15
Leisure activity	9	11	19
Friends	5	1	4
Work–life balance	4	4	0
Lifestyle	4	8	4
Other	4	9	11
Family	3	8	26
Partner	2	1	7
Voluntary work	1	0	0

Note: N = 341.

Those living with partners were more likely to have definite goals related to finances, living arrangements, family or their partner, or leisure activities than others.

Seventy-eight percent of those who had definite goals for the next three years had plans to achieve these; with lower rates of plans among the neither studying nor employed (59%).

Most of the 20-year-olds thought it was important for people their age to have goals: 53% that it was very important, and 34%, important. Those who thought it important to have goals were more likely than those who did not to also state their belief in the importance of financial planning. However, belief in the importance of goals was not tied to any experience of major regrets since leaving school, or with voting in the 2008 general election (perhaps because most of the 20-year-olds who voted did not seem to exercise their vote because they wanted a particular party to win).

Discussion

Family and friends were important for most of the young people, providing support, sharing activities and often extending their interests and experiences. Just over half still lived with their families, with some experiencing some tensions in this. Encountering a wider range of people, in adult roles where responsibility is taken, seems to have also given more weight to values of helpfulness or kindness, having a sense of humour and contributing to a community or cause. Around three-quarters thought it important to keep up with current events, and exercise their vote in general elections, though only a third voted because they cared who won the election.

The 20-year-olds were extending their experiences through friendships, romance and sex. They were interested in travel, as another means of extending their experiences. They were exercising their independence, and that included experiencing what it meant to lose control. Most drank, and overdid it at least once in the previous year. Many were discovering that while leaving school had given them a sense of greater freedom, making their way as young adults—as employees, students, sometimes parents, as jobseekers—did not guarantee a sense of having enough freedom. Money certainly played a part in this. Forty percent did not feel they were in control of their finances, and 70% had a loan of some kind, not all of which were student loans with good conditions. However, just over a third were also saving money on a regular basis.

Planning ahead was seen as important—as was setting goals, though around a quarter of those who had definite goals for the next three years also had plans to achieve those goals.

The young adults were not always sanguine about their experiences, and one in eight had sought treatment for a mental health problem in the past year.

Current learning approaches

10. Learning dispositions

When we first embarked on the Competent Learners project and thought about how one could validly measure the effects of education, we decided it was important that formal education should lay down habits of learning that would enable learning in a range of situations, including situations after the end of school. The age-20 phase of the study provided a good opportunity to gauge the learning dispositions the sample had gained that they could use in other situations. We use the term "dispositions" following Deakin Crick and Yu's (2008) discussion of the term as:

> a relatively enduring tendency to behave in a certain way … a construct linked to motivation, affect and valuing as well as cognitive resources … A disposition arises from desire, or motivation, which provides the energy necessary for action.

Chapter 6, focusing on employment, showed that the learning opportunities the 20-year-olds were aware of in their paid work were important to many in this sample, indicating that many (but not all) had gone on from school with an interest in learning, in gaining new knowledge, skills and understanding. In this chapter, we show that many also had useful dispositions to learning that would enable ongoing learning in different situations they would encounter as adults.

Our measures of learning dispositions do not cover all learning dispositions, and the questions are general, covering both formal (leading to a qualification) and informal (unstructured and structured) learning. Because different situations can elicit different learning dispositions in the same individual (for example, I might be happy to make my own way among self-selected material to understand more about the geology of New Zealand, but seek direct instruction, feedback and practice in learning how to climb), it is likely that different individuals answer these items in relation to different situations they think of, and the weight they give them in deciding their answer. This would apply to any measures of learning dispositions that were not asked specifically in relation to a particular course or intentional learning task. The contextual nature of response does mean we feel some caution in relating our measures of learning dispositions to formal learning outcomes. In this chapter, our focus is more on charting the dispositions, and seeing how they might relate to our previous competency measures, and different past and current experiences. We cannot analyse how enduring these dispositions are because we have not measured them in earlier phases; and items that we have drawn from earlier phases to use in these measures were asked of teachers, not the individuals themselves. We do have some indications of endurance over time, however, from looking at the cross-tabulations of relevant experiences and perspectives.

To measure learning dispositions at 20, we used two scales from the Effective Lifelong Learning Inventory (ELLI), a formative assessment instrument which focuses on intentional learning and which has been used to help learners and teachers develop awareness of their own dispositions to learning so that they can strengthen their "learning power" (Deakin Crick, Broadfoot, & Claxton, 2004; Deakin Crick et al., 2007; Deakin Crick & Yu, 2008). We also used nine questions from our age-16 attitudinal competency items to provide some continuity with earlier items.

The ELLI has seven scales. We could not use all of these in our study because of the time factor. Ruth Deakin Crick and the University of Bristol kindly provided, from their own research, correlations for the 10,496 school students and 1,997 higher education students in England who had completed the ELLI, so we could identify the scales that were most and least correlated with each other. The school student scales were called "changing and learning", "critical curiosity", "meaning making", "creativity", "strategic awareness", "learning relationships" and "fragility and dependence". "Strategic awareness" had the highest correlations with the other scales, other than "fragility and dependence", which

stood out on its own. We therefore chose those two scales to use in the Competent Learners age-20 phase. “Strategic awareness” had correlations of 0.68 with “changing and learning”, 0.73 with “critical curiosity”, 0.65 with “making meaning”, 0.73 with “creativity”, 0.38 with “learning relationships” (the second least correlated scale) and -0.003 with “fragility and dependence”. Correlations were much higher for the school students than for the higher education students, with the same trends.

We undertook factor analysis on the whole set of items we used at age 20. This yielded three distinct factors, or aspects of learning dispositions which we have called *strategic learning*, *disciplined learning* and *need support to learn*. Those who had high scores on the strategic learning measure were also more likely to have high scores on the disciplined learning measure (r = 0.67). The need support to learn measure was not well correlated with either of these measures, indicating that one could be well framed or well disciplined in one’s approach to learning, but still need support to learn (r = -0.29 with strategic learning, and -0.32 with disciplined learning). Nonetheless, only 13% of those with high scores on the strategic learning measure had high scores on the need support to learn measure, while over half also had high scores on the disciplined learning measure.

We describe each of the factors in turn, starting with strategic learning. We report the links with the 20-year-olds’ earlier competency levels, and associations found between age-14, age-16 and age-20 variables for each factor in turn. Then we report the frequencies for the items in the set we asked that did not fit any of these three factors.

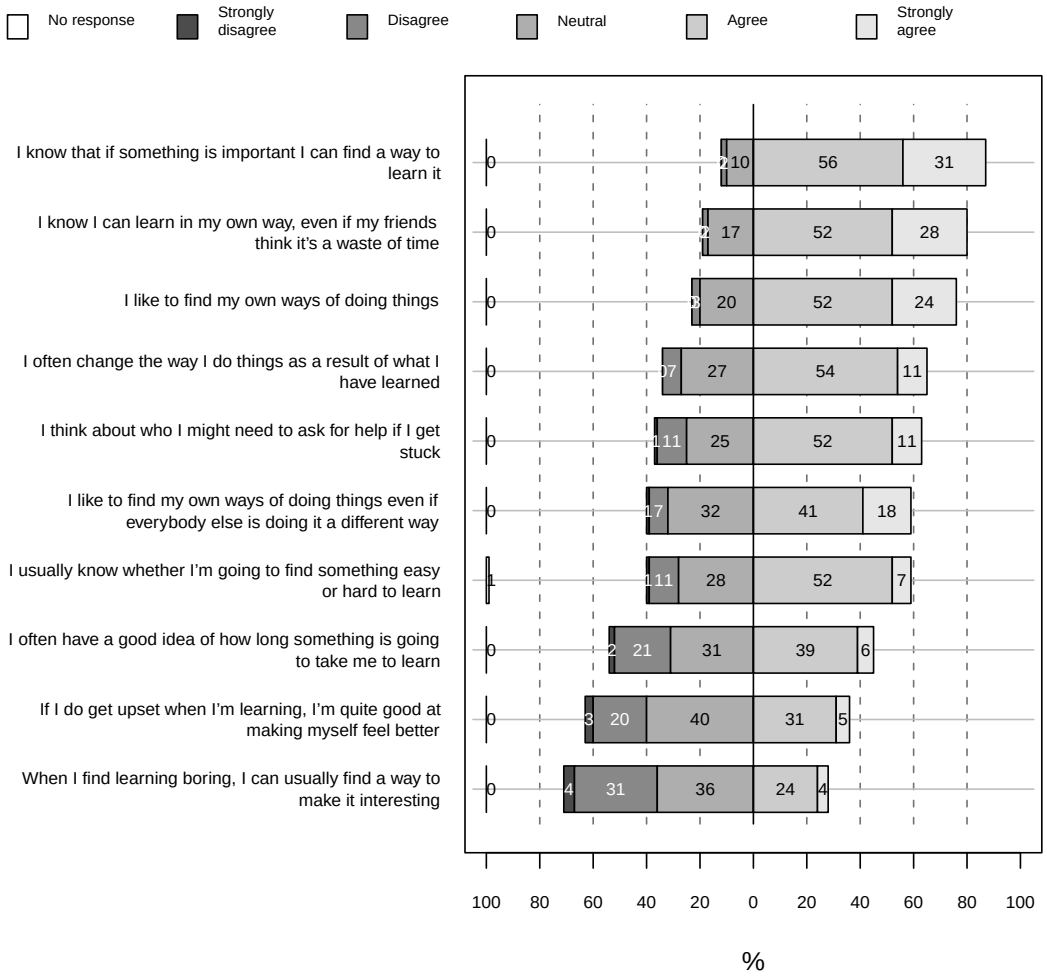
Strategic learning

We called the first factor, *strategic learning*, because all of its items came from the ELLI scale strategic awareness. These items are about exercising personal agency when it comes to learning, thinking about what is entailed in learning tasks and how to improve the experience of learning or its results. There is also an item indicating that learning leads to change in the person’s experience.

The strategic learning factor had a Cronbach’s alpha of 0.74, indicating a good level of internal consistency among the items that made up the factor, indicating that the set of items is measuring an underlying construct. Individual correlations between the items ranged from 0.24 to 0.51. The mean score on the 10-point scale was 6.61 (s.d. 1.09).

Figure 10.1 shows that many of the young people in this sample were prepared to customise their learning to suit what they knew about themselves and how they went about learning, though they were somewhat less likely to do things very differently from others. Sixty-five percent had experience of often changing the way they did things as a result of learning, indicating that they had found learning useful. However, just under half thought they often had a good idea of how long something would take to learn and only 28% thought they could usually find a way to enliven learning they were finding boring. The relatively high proportion of neutral answers on this latter item, and on the ability to make oneself feel better if one felt upset in the learning situation, may indicate that the ability to do these things depends on what is being learnt, or the situation in which it is being learnt, or for some, that there was little experience of boredom or feeling upset during learning.

Figure 10.1: Strategic learning

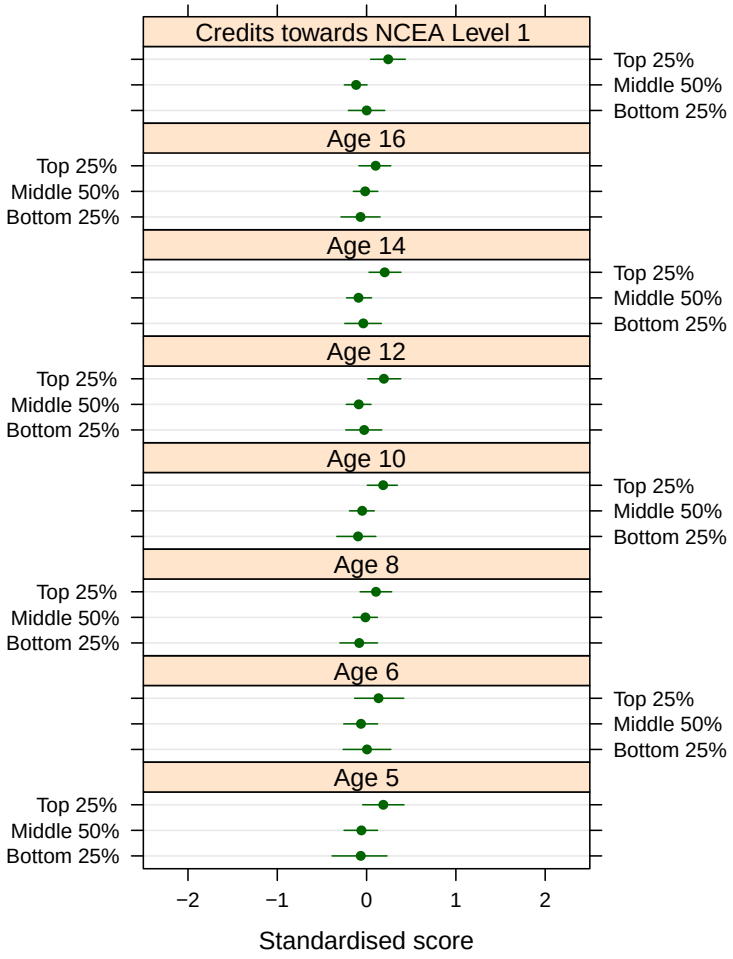


Note: N = 401.

Links with earlier competency levels and qualifications

Looking retrospectively, those in the highest quartile on the strategic learning measure at age 20 had had higher average cognitive composite scores from age 5, though the difference is less marked at age 16. Nor is there a marked difference in relation to NCEA Level 1. But the differences between high and low performers on the strategic learning measure are not wide. This lack of difference suggests that the dispositions to learning included in the strategic learning measure do not match closely with previous cognitive performance levels, an encouraging suggestion that these useful learning dispositions appear to be less formed through time, and more open to development in a range of situations, for many.

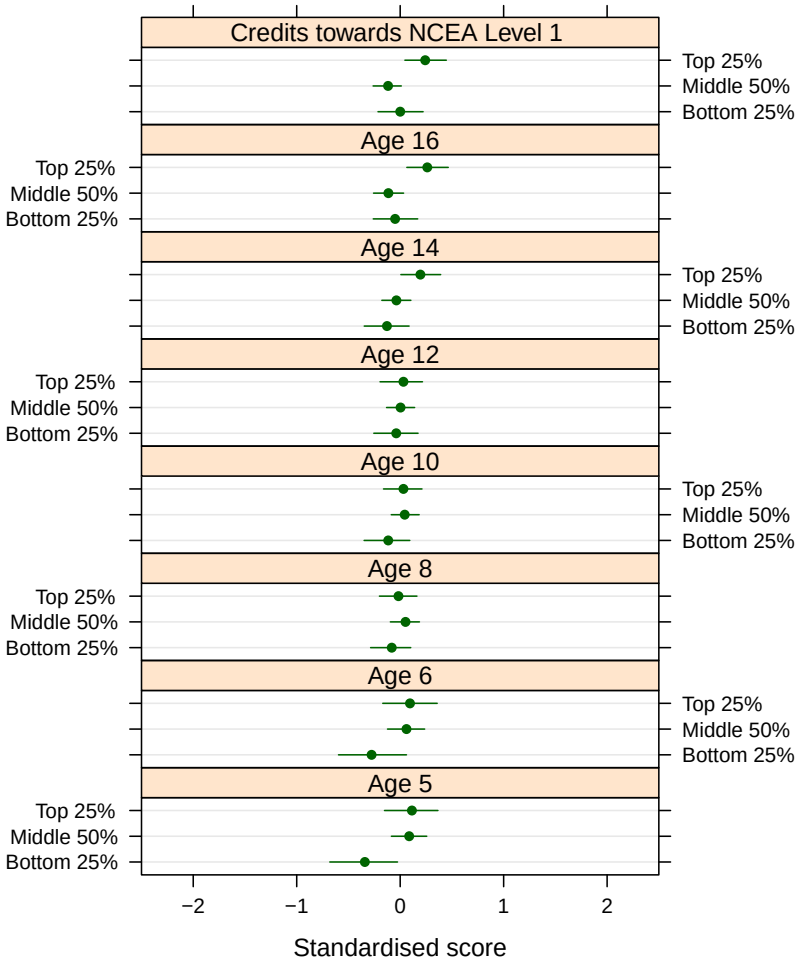
Figure 10.2: Strategic learning measure level and earlier cognitive composite competency scores



Patterns of previous attitudinal competency scores also do not show marked differences in relation to levels on the strategic learning measure. We undertook the analysis for both the composite attitudinal measure and the individual competencies of perseverance, communication and curiosity. The lack of difference may simply indicate the closer focus on learning dispositions in the age-20 measure. Another potential reason why we do not see marked differences between these competencies at young ages and the strategic learning measure is that the competency measures in previous phases of the study were based on teacher judgements, and the strategic learning measure was based on self-report.

We do see some difference between the top quartile group on the strategic learning measure and others in relation to the attitudinal competency composite from age 14. Interestingly, there is no difference between the bottom and mid-level groups on this measure in terms of their NCEA Level 1 performance.

Figure 10.3: Strategic learning measure levels and the attitudinal competency composite



Note: N = 401.

We did find it was more likely that those who did not achieve NCEA Level 1 literacy and numeracy standards would be in the lowest quartile of the strategic learning measure (44%, cf. 24% of those who did achieve these standards). But there are no consistent patterns related to highest school qualification or post-school study level; though scores are higher among those who were undertaking some study at age 20—where they would be experiencing ongoing formal learning

Links with age-14 and age-16 experiences, reactions and relationships

Low scores on the strategic learning measure were more likely among those who were also in the lowest quartile for our age-14 and age-16 measures of using internal markers to gauge progress in learning, absorption in learning, engagement in school and confidence at school and general educational motivation. Those who got low scores on the strategic learning measure were also less likely to have reported positive learning environments in school when they were 16. These linkages make sense.

Family relations were also linked with scores on the strategic learning measure, with lower scores among those who had reported lower levels of family communication and inclusion, and higher levels of pressure, at both ages 14 and 16. Lower levels of extending and solid friendships at age 16 were also associated with lower levels on the strategic learning measure at 20.

Those who had no particular interests, or a main focus on electronic games at age 14, were less likely than those with other interests to be among the highest quartile on this measure of strategic learning. They were less likely to report at 14 or 16 having been praised for achievements, and at 16, being included in groups they wanted to be in, and taking action about a situation that concerned them.

But, unlike school qualifications or current main activity at age 20, we see no relationship between levels of strategic learning performance and adolescent risky behaviour, or friends with risky behaviour. Strategic learning levels are also unlinked to how long individuals expected at ages 14 or 16 to stay at school, how long it had taken them to settle into secondary schooling, number of schools attended or the age they left school.

Social characteristics, including family resources, were also unrelated to levels on the strategic learning measure.

Thus, what strategic learning levels linked to most were previous experiences of learning, at school, through relationships (friends and family) and through interests.

Age-20 experiences and views

Higher scores on the strategic learning measure were linked with current high levels of family closeness and support, with extending and solid friendships, creative or community/voluntary interests and enjoyment of reading. Those with higher scores were less likely to spend all their money without planning ahead. They were more likely to have acted on something that concerned them, or supported a friend in trouble. But note that there still were no differences in relation to risk activity or behaviour that could tip someone sideways from what otherwise looks like a well-woven pattern of interests, support and attitudes that keep extending those interests and support. For example, those in the high-scoring group on the strategic learning measure were just as likely as those in the low-scoring group on this measure to binge drink, lose control of their temper or get in trouble with the police.

There were some interesting differences in what was important to those at different levels on the strategic learning measure. As one might expect from the patterns of associations above, doing well at work and study was very important to 38% of the low scorers, 45% of the mid-level scorers and 70% of the high-level scorers. Doing well in a hobby or personal interest was very important to nine percent, 18% and 33% of the groups respectively, with a similar pattern in relation to being creative or making something new, and enjoyment of what they did. There was also strongest agreement among those with the higher scores on the strategic learning measure on the importance to them of being helpful or kind, being with family/whānau or having good health.

Higher scorers on the strategic learning measure were more likely to be studying or looking after their own child. Among those studying, the expectation that they would undertake further study after completing their current study programme was highest among those who scored highly on the strategic learning measure. Among the whole sample, the low scorers on the strategic learning measure were somewhat less likely to think that they would undertake study or training for a qualification as an adult, with 11% thinking they could expect to do this more than three times, cf. 27% of those with high strategic learning measure scores.

Current study experiences were associated with scores on the strategic learning measure, with those with higher scores seeing gains in analytical, planning and problem-solving skills from their course, reporting that their teachers were extremely good at explaining things, and made a real effort to understand difficulties they might be having with their work. The work was at the right level of challenge; they felt part of a group of students and staff committed to learning and they contributed to class discussions. Not surprisingly, the high scorers on the strategic learning measure were most likely to report themselves happy with their course. There are no differences associated with views of how well course

staff provided support or feedback—it was in the way learning was framed, and the sense of teachers working with students that distinguished the views of the high scorers on the strategic learning measure from others.

It is likely that we are seeing a virtuous spiral here: that while those with habits of learning that support the development of understanding and skills feel their teachers and courses are extending their knowledge and skills, they are also responding effectively to the opportunities presented.

Optimism and happiness with what they were doing were also associated with higher scores on the strategic learning measure. Having definite goals for the next three years was unrelated to scores on the measure, but those with higher scores were more likely to have plans to achieve those goals. Seventy-one percent of those in the top quartile thought it very important for people their age to have goals, cf. 51% of those with mid-level scores, and 38% of those in the lowest quartile.

Somewhat lower scores on the strategic learning measure were evident among those who were employed without studying, currently unemployed or having experienced some unemployment since they left school, or whose first destination after school was employment. This may indicate fewer opportunities for the ongoing use and development of learning dispositions in the kinds of employment available to some young people. Views of current work also showed some differences consistent with experiencing fewer opportunities for ongoing learning. Those with low levels on the strategic learning measure were less likely to strongly agree that they were learning lots of new skills, that they had useful informal on-the-job training or that their job was at the right level of difficulty for them. They were also less likely to strongly agree that they enjoyed their work and that, overall, they were doing what they wanted to be doing.

When asked what was important in work to them, those with low levels on the strategic learning measure were less likely to think it was important that work allowed them to be creative. Asked about how they defined a career, they were less likely to think it meant having a qualification they could build on with more qualifications and experience in the same area, a job they held for more than five years or the use of the same skills in different jobs in different workplaces, having paid work that gave them enough time for family, friends and leisure activities, or having a job they could do well or a job they loved. Thus expectations of work and career can also be less among those who have not developed active approaches to learning and a sense that learning can lead to change.

Among those who had studied after they left school, rates of leaving a course without completing it were twice as high among those who had low scores on the strategic learning measure as others (21%, cf. 10%). This group was also less likely to have gained a qualification since leaving school (15%, cf. 29% of those with high levels on the strategic learning measure). While the kinds of qualifications they had gained were not dissimilar, they were more likely to have taken a year or more to gain their qualification, even though just under half of them had been able to credit work towards this qualification.

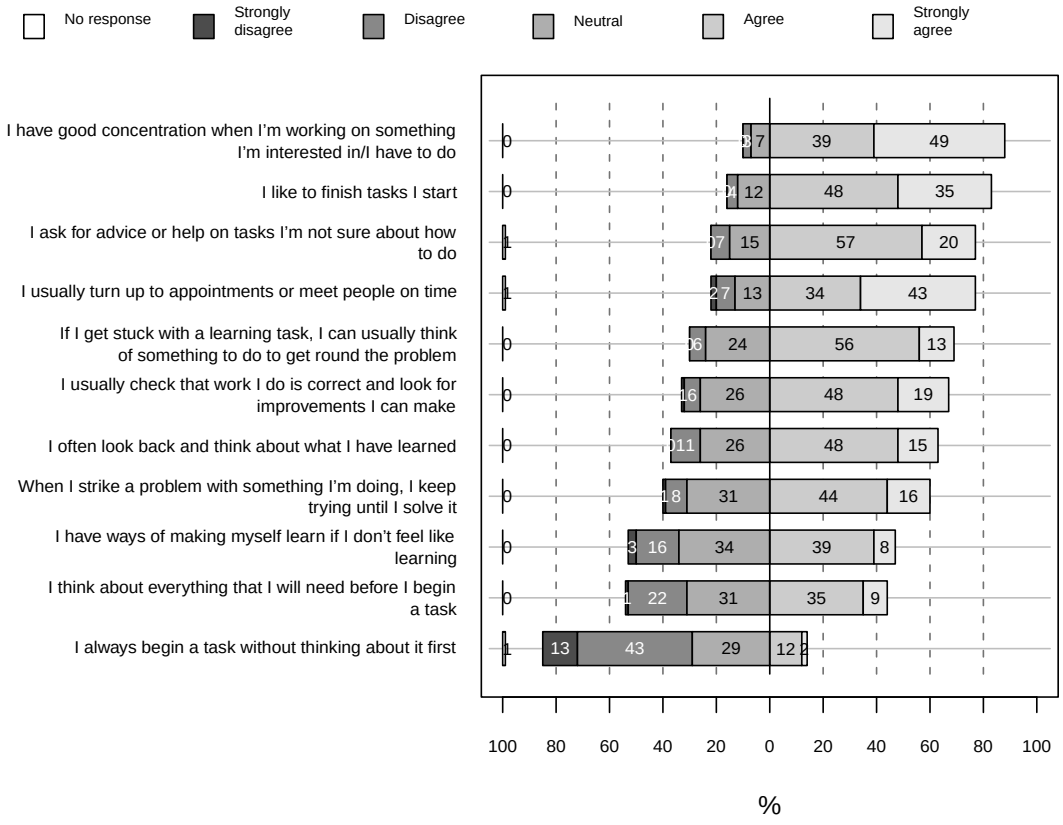
Lower scores on the strategic learning measure were also associated with not feeling that having more independence and/or getting a job or establishing a career and/or studying what they want and in ways that suit was one of the best things about leaving school. This group was also more likely to have found the hardest things about leaving school were working out what they wanted to do, finding a job, establishing a career, making enough money and making their own decisions about life. They were less likely to say that their current main activity was connected with either a school subject or a school activity that was not a subject, or something they had wanted to do since they were little.

Disciplined learning

We called the second lifelong learning disposition factor we identified *disciplined learning*, since most of its items had aspects of perseverance and organisation. Six of the 11 items in this factor came from the age-16 phase of Competent Learners, four from the ELLI strategic awareness scale and one from the ELLI fragility and dependence scale (reverse scored here). This factor had a Cronbach's alpha of 0.77, showing good internal consistency, and item–scale correlations between 0.22 and 0.53. The mean score on the 10-point scale was 6.76 (s.d. 1.18).

Figure 10.4 shows that most of the age-20 participants in the study thought their concentration was good when they worked on things that interested them, and that they liked to finish what they had begun. Just under half were confident they could overcome not feeling like learning, and make themselves learn.

Figure 10.4: Disciplined learning

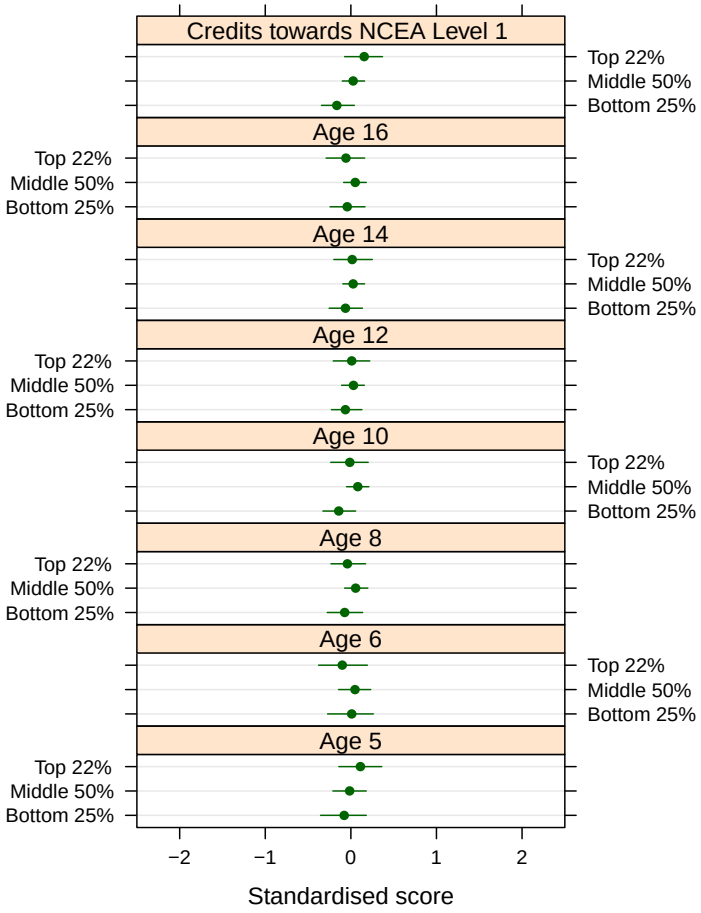


Note: N = 401.

Links with earlier competencies and NCEA Level 1

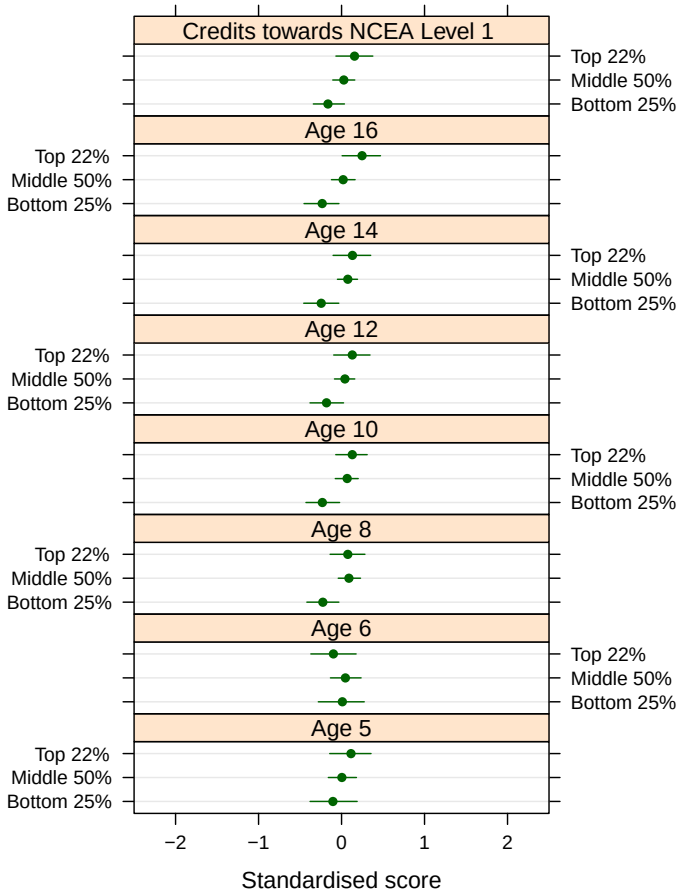
Levels on the disciplined learning measure showed no relationship with previous cognitive competency scores. We do see differences related to NCEA Level 1 credits—the first secondary qualification. Just under half of those who did not achieve NCEA Level 1 literacy and numeracy were in the lowest quartile on the disciplined learning measure.

Figure 10.5: Disciplined learning measure, cognitive competency composite levels



By contrast, Figure 10.6 shows differences in earlier attitudinal competency composite scores emerging at age 8, when those who had low scores on the disciplined learning measure at 20 started to have lower average scores than others. At age 16, and in NCEA Level 1, we also see some difference between those who were in the top quartile and those who were in the mid-levels of the disciplined learning measure.

Figure 10.6: Disciplined learning measure and attitudinal competency composite levels



Links with social characteristics, age-14 and age-16 experiences and attitudes

Scores on the disciplined learning measure showed no links with social characteristics, including family resources.

High scorers on the disciplined learning measure were more likely to have had higher scores on our age-14 measures of their confidence in the school environment, use of internal markers to gauge progress and reports of being absorbed in their learning. Positive learning environments in English, mathematics and science were less likely to be experienced by those with low scores on the disciplined learning measure. Perhaps surprisingly, there are no links with motivation. Nor do we see links between scores on the disciplined learning measure and the age when students left school, nor age-16 thoughts among the students at school about what they would do when they first left school. They had higher scores for family communication at age 14. But there were again no links between this positive learning disposition and experiences of risky behaviour.

Age-16 self-reports of how absorbed they were in learning at school and, again, the use of internal markers to gauge performance were related to scores on the disciplined learning measure at 20; as were teacher reports of the student attitude to work. Confidence in the school environment continued to show links, and so did the age-16 level of student engagement in school. Experience of positive learning environments was also associated with higher scores on the disciplined learning measure.

Family communication levels at age 16 were also higher among those who scored highly on the disciplined learning measure.

Links with post-school experiences and attitudes

At age 20, those with high levels on the disciplined learning measure were more likely to be engaged in some tertiary study (79%, cf. 61% of those with mid-levels on the measure, and 58% of those with low levels). They were least likely to enjoy electronic games. But there were no links between this measure of learning approach and employment status—either past or present. In other words, unlike the strategic learning measure, we did not see lower scores among those who were currently employed, or unemployed, who had experienced unemployment or who went straight from school into employment.

Those with low levels on the disciplined learning measure were less likely to currently have a close and supportive family, extending or solid friendships, to experience informal physical activity or undertake hobbies with friends, or participate in community/voluntary activities. Doing well at work or study was less important (25% said this was very important to them, cf. 51% of those with mid-level scores on this measure, and 71% of those with high-level scores). Doing well at an interest was also less important (respective figures for the three levels on the disciplined learning measure of who said it was very important are five percent, 19% and 37%), with similar trends evident in relation to doing creative things or making something new. Just 54% of those with a low level on the disciplined learning measure said it was very important to them to enjoy the things they did, cf. 70% of those with mid-level scores, and 82% of those with high-level scores. We also saw the same patterns reported in relation to the strategic learning measure, in terms of differences in how important it was to be helpful or kind, and to have good health. The higher the level of scores on the disciplined learning measure, the more likely it was that having a sense of humour was seen as very important.

Those in the lowest quartile on the disciplined learning measure were less optimistic and happy with their current situation. Fifty-seven percent would rather be doing something else, cf. 39% of those with mid-level scores, and 27% of those with high scores. They were also most likely to have got behind in their course or paid work, had nothing to do or been bored or got into trouble with the police over the past year.

Those in the highest quartile on the disciplined learning measure were least likely to have been a passenger in a car driven by a drunk driver, though they were just as likely as others to have driven themselves while drunk. They were more likely to take action about something that concerned them, and less likely to not have enough money.

But, again, those with low scores on the disciplined learning measure were just as unlikely as those with high scores to "walk on the wild side". Being practised in persevering and concentrating did not translate neatly into not giving way to temptation, or experimentation with something novel. Indeed, one can think of some situations where a disciplined learning approach could take someone further into risk than a peer who did not have such an approach: using high levels of perseverance, concentration and an interest in ways to become interested, which from the patterns we see here—as reported above and to follow—seem to develop from experiences of interest and connections with others.

As with the strategic learning measure, lower scores on the disciplined learning measure were likely to be seen among those who did not find having more independence and/or getting a job or establishing a career and/or studying what they want and in ways that suited them had been one of the best things about leaving school. Those in the lowest quartile on the disciplined learning measure were more likely to have found the hardest things about leaving school included finding a job, establishing a career, missing the routine of school, making enough money and making their own decisions about life. They were more likely to have left a post-school course without completing it (23%, cf. 10% of others).

The high scorers on the disciplined learning measure were more likely to say that what they were currently doing was connected to a subject they had done at school, something they had wanted to do since they were little or voluntary work they had undertaken.

Views of their current course were linked to levels on the disciplined learning measure, but not with as many items as we found in relation to levels on the strategic learning measure. Those with high scores on the disciplined learning measure were more likely to think that their teachers worked hard to make the subject interesting, and that the course material was engaging, that the course was sharpening their analytical skills, developing their ability to plan their own work and giving them confidence to tackle unfamiliar problems, that they reflected on what they had learnt, were learning something about themselves and contributing to class discussions. They were happier overall with their course. What is most likely to be happening here is a two-way process, rather than a one-way causality between learning opportunities and learning dispositions (or vice versa). Again, these associations suggest a virtuous spiral, with students making the most of good learning opportunities, through bringing to bear the habits of finding interest, of concentrating (a condition for deepening interest and understanding) and of persevering, and in the process further developing these enlivening habits.

Strong agreement with positive views about current employment increased with scores on the disciplined learning measure, particularly in relation to enjoyment of the area of work, learning lots of new skills, finding the work to be at the right level of difficulty, providing useful formal and informal on-the-job-training and having good opportunities for progression. Like study experiences, it seems likely that experiences of work reflect both what is offered and what people bring to the work. At the same time, without good opportunities for workplace learning, it is unlikely that people can keep developing useful habits, habits that are important for what they can contribute to their work, and their own lives, whatever level they brought with them into a particular workplace.

Commitment to work could matter more to those with high scores on the disciplined learning measure: they were most likely to think it very important that a job allowed a lifelong career and opportunities for promotion. They were also more likely to think of “career” as having a job you could do well.

Saving on a regular basis was least likely for those with low scores on the disciplined learning measure, who were also least likely to think it important to plan ahead for the next couple of years (though they were just as likely as others to think it important to plan for the next 10 years, or for retirement). This group was also least likely to have voted in the 2008 general election or local body election.

High scorers on the disciplined learning measure were least likely to have any major regrets in what they had done since school (12%, cf. 26% of those with mid-level scores, and 32% of those with low scores). Since most regrets were to do with study, this may be because they were the group who were studying, and who were less likely to have left a course without completing it.

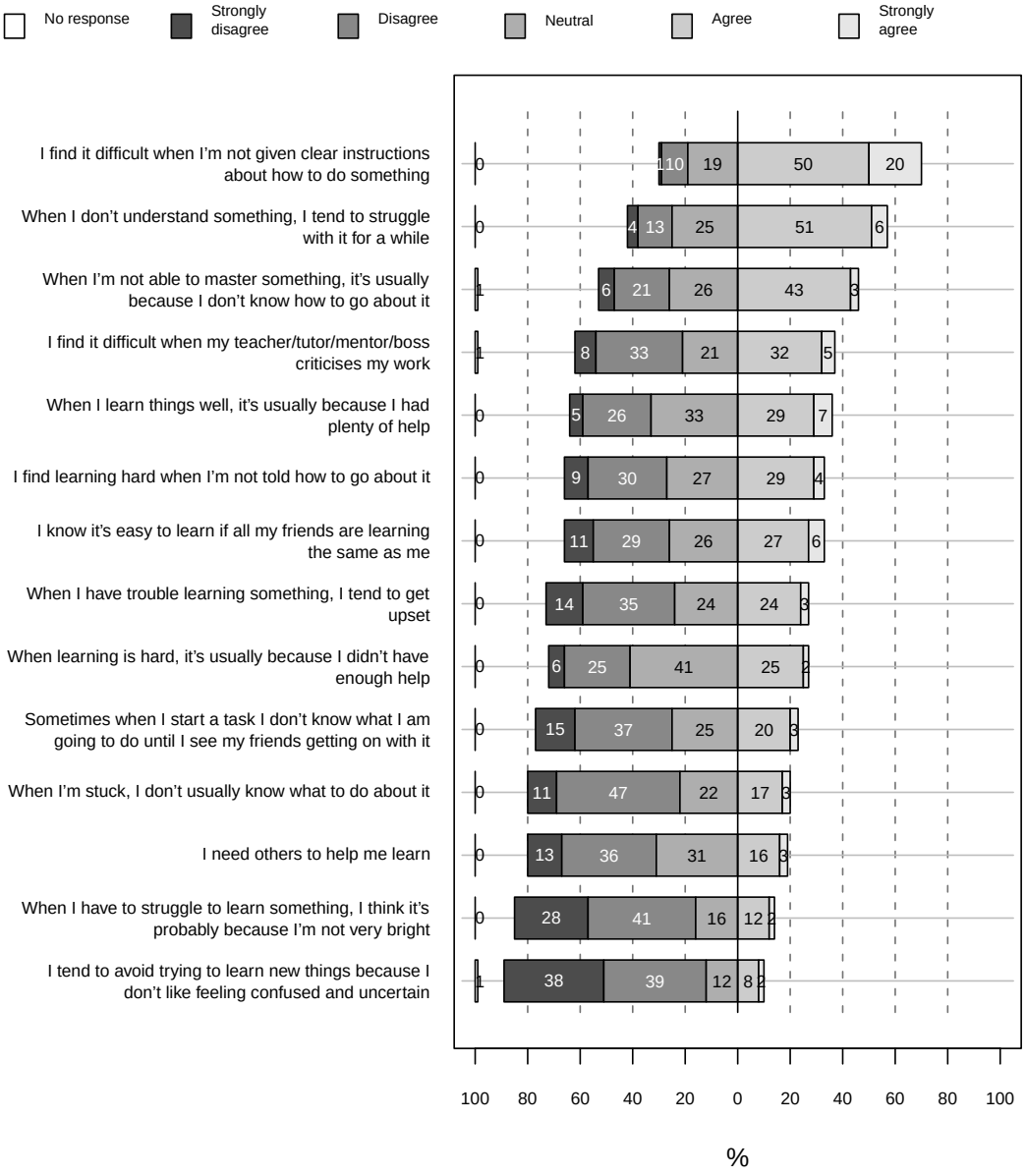
Having goals was seen as very important to only 32% of those with low levels on the disciplined learning measure, cf. 56% of those with mid-level scores, and 64% of those with high scores. Definite plans for achieving their own goals over the next three years were also linked to levels on the disciplined learning measure (65% of those with low scores on the disciplined learning measure had such plans, cf. 76% of those with mid-level scores, and 89% of those with high scores).

Need support to learn

All 14 items in the *need support to learn* factor came from the ELLI fragility and dependence scale. This factor had a very good internal consistency, with a Cronbach's alpha of 0.85, and correlations between the items on the scale between 0.41 and 0.63. Mean scores on the need support to learn measure were 4.58 (s.d. 1.47) on a 10-point scale.

On the whole, the participants in the age-20 phase of the study were reasonably confident about learning. Figure 10.7 shows that only 10% tended to avoid learning new things because they did not like feeling confused and uncertain. About a fifth to a quarter indicated less confident identities as learners—they agreed that they needed others to help them learn, did not know what to do when they got stuck, attributed difficulty in learning to not getting enough help and got upset when they had trouble learning.

Figure 10.7: Need support to learn

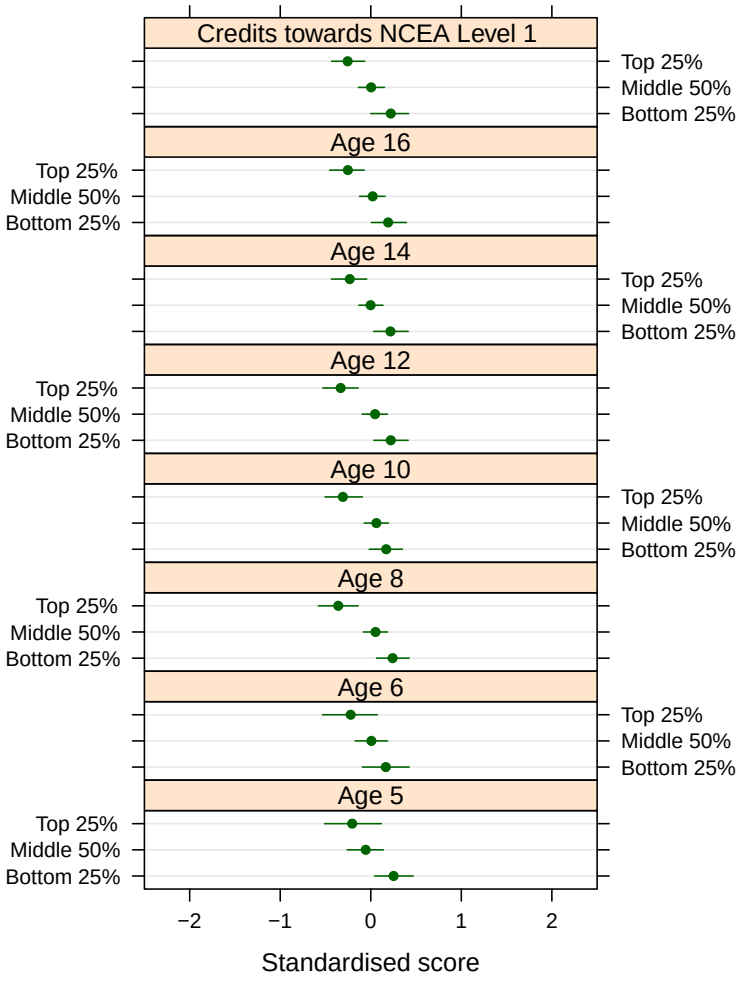


Note: N = 401.

Links with previous competency levels and NCEA Level 1

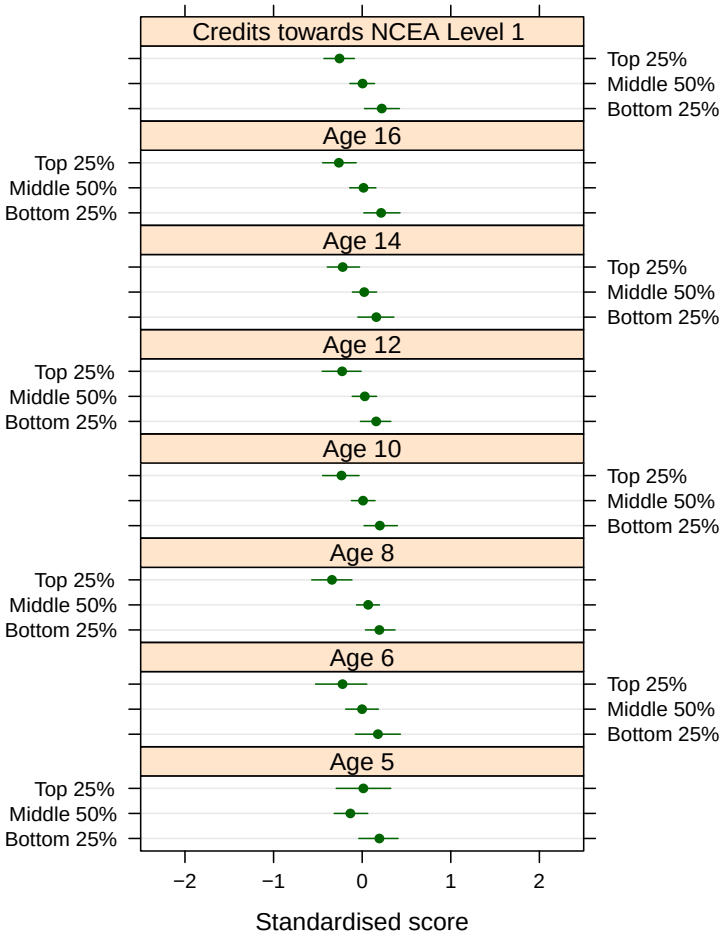
We found much more continuity between past cognitive competency levels and NCEA performance with levels on the need support to learn measure than with levels on the strategic learning or disciplined learning measures. Those least likely to need support to learn at 20 had had higher cognitive competency scores than those who were most likely to need support to learn as adults since age 5—although the gap is not wide. This difference persisted through schooling.

Figure 10.8: Need support to learn measure and cognitive competency composite scores



We see a not dissimilar pattern in relation to previous scores on our attitudinal competency composite scores, but with differences emerging from age 6. This is consistent with the results of modelling we undertook in earlier phases showing that cognitive competency scores at one age contributed to attitudinal scores at the next; while attitudinal scores contribute to cognitive scores at the same age rather than additionally to the next age (Wylie, Hodgen, & Ferral, 2010), and with our finding in the age-16 phase that the early school-leavers' attitudinal scores were much the same as others in the early years of school—that it was not until age 8 that we started to see divergence (Wylie & Hodgen, 2007). Our interpretation was that lack of success in the early school work of learning to read and work mathematically could erode the useful habits children had brought to school, such as perseverance, curiosity and communication.

Figure 10.9: Need support to learn measure and attitudinal competency composite scores



Yet we did not find any links between needing support to learn, and school-level educational achievement. Those who needed more support to learn than others at age 20 were just as likely to have gained, say, NCEA Level 3 or UE.

Links with social characteristics, age-14 and age-16 experiences and attitudes

Social characteristics, including family resources, were unrelated to whether 20-year-olds needed support to learn.

We found even fewer links with earlier experiences and relationships with this approach to learning than we found with the strategic learning or disciplined learning measures. Interestingly, scores on the need support to learn measure were not associated with age-14 motivation levels. However, at age 14, those with high scores on this factor—those with most need of support for their learning at age 20—were likely to have been less confident in the school environment, and more likely to be disengaged from school and experience a disruptive learning environment. They were more likely to come into the "standing out" values cluster, and less likely to report inclusion in their family activities. Television watching was likely to have been at high levels between the ages of 8 and 14.

Those with the least need for support in their learning at age 20 were least likely at age 14 to experience family pressure, and most likely to have enjoyed reading between the ages of 8 and 14.

Those with the most need of support to learn at age 20 were less likely to have reported high levels of positive learning environments in their courses, of confidence in the school environment, or of engagement in school, when they were 16. Their teachers then were less likely to report high levels of their attitude toward NCEA—the way they were preparing for and approaching NCEA assessments. They were less likely to have a supportive or inclusive family, or solid

friendships. But there were no links between this measure of lifelong learning and risk behaviours, or with family pressure.

Links with post-school experiences and attitudes

Those with the least need for support for learning at age 20 were somewhat more likely to be undertaking tertiary study at the age of 20—70% were doing so, cf. 64% of those with mid-level scores on this factor, and 59% of those with low-level scores on this factor.

Need for support for learning was related more to patterns of support and acceptance elsewhere in life. Those with higher scores on the measure of need support to learn were also less likely to enjoy close and supportive families, extending or solid friendships or to have kept their school friends. They were more likely to report depression and rejection, and less likely to report optimism. Eighteen percent were very happy with what they were currently doing, cf. 37% of those with mid-level scores on the measure, and 48% of those with low scores. However, those with high scores on the need support to learn measure were no more likely than others to identify something they would rather be doing, or voice a major regret in what they had done since leaving school (in contrast to the patterns we found for the other two learning dispositions).

Experience of unemployment since leaving school was more likely, among those who had high levels on the need support to learn measure, as was not studying or working in their first post-school year. They were less likely to reflect that the transition from school to what they were doing now had been easy. In thinking about the things that had been best about leaving school, those with high levels on the need support to learn measure were less likely to mention establishing a career. They were more likely to include having to make their own decisions about life, post-school study skills, making new friends, getting along with new people, managing money and missing school routines among the hard things about leaving school.

Those who had low scores on the need support to learn measure were least likely to say that the hard things about leaving school included working out what they wanted to do, missing old school friends, getting used to new teachers or learning a new job. What they were currently doing was most likely to be connected to a school subject.

Enjoying the things they did was less likely to be seen as very important by those who most needed support to learn. Those who least needed support to learn were most likely to think it very important to do well at a personal interest.

Patterns of experiences over the past year suggest that high levels on the need support to learn measure can have different underpinnings. Among the differences between this group and others are a wide range of experiences. There were differences relating to experiences of health problems, being hassled about body shape, feeling left out, feeling sad for no reason, thinking about or attempting suicide, suggesting young people who felt themselves to be (too) alone. Other differences point to something different: young people who had high scores on the measure because they were finding it hard to settle; who were getting behind on course or paid work, feeling pressure to do what they did not want to do, not having enough freedom, having unprotected sex and fighting with others in the home.

While those with high scores on the need support to learn measure were just as likely as others to have gained a qualification since they left school, they were more likely to have left a course without completing it (21%, cf. 12% of those with mid-level scores, and seven percent of those with low-level scores).

Those with high scores on the need support to learn measure who were currently studying were less likely to think that their teachers were extremely good at explaining things, that their course was giving them confidence to tackle unfamiliar problems or sharpening their analytical skills, or that the course was convenient. Those with low scores on

the need support to learn measure were most likely to think that their courses were developing their ability to plan their own work, were at the right difficulty level, to be enjoying their course content and to be happy with how much they were challenged. Forty-one percent of the low-scoring group on the need support to learn measure thought they would go on with full-time study when they completed their current course, cf. 18% of those with mid-level or high scores on this measure.

Current opportunities for learning within employment and views of what was important in a job and what made a career did not differ in terms of different scores on the need support to learn measure.

Those with high scores on this measure were more likely to say they spent all their money rather than planning ahead, but they were just as likely to have plans to achieve definite goals within the next three years, and to think it very important to have goals at their age.

Views on learning ability and consistency of approach

Five of the items that we included with the learning dispositions items did not fit into any of these three factors, although they do show links. Two of the items came from the ELLI fragility and dependence scale, and three from Competent Learners' attitudinal measures. First we report the ELLI items. Views were fairly evenly spread in terms of whether individuals felt their learning ability stayed much the same, and that they always did the same thing when they were learning. It seems likely that answers may have depended on the range of learning experiences people had experienced, and which learning experiences they were thinking of when they answered this item (eg, your view of your ability might differ if you were thinking of learning how to drive a car, compared with understanding how to research and write a history essay).

Table 10.1 shows that the young people were fairly evenly divided on whether learning ability stayed pretty much the same, and whether they always did the same thing when they learnt.

Table 10.1: Views on learning ability and approach

	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %
My learning ability stays pretty much the same	3	28	31	29	7
I always do the same thing when I'm learning	5	30	32	28	4

Note: N = 401.

Those who thought they always did the same thing when they were learning, or that their learning ability stayed much the same, tended to have high scores on the need support to learn measure, and low scores on the disciplined learning measure. Low scorers on the strategic learning measure were less likely than those with high scores on this measure to agree that they always did the same thing when learning.

Table 10.2 shows that new experiences or challenges were generally enjoyed, and more than half the participants in the age-20 phase of the study reported that they often thought "outside the square". Making decisions on the spur of the moment was also common for just over half the sample. These three items would indicate that generally these young people were open to things, or liked to think they were: that openness was something that had come to be part of how they liked to think they approach the world.

Table 10.2: Openness

	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %
I do things/make decisions often on the spur of the moment	15	41	27	14	2
I enjoy new experiences or challenges	42	44	11	3	< 1
I often "think outside the square", finding new ways to do things or solve problems	21	39	31	8	1

Note: N = 401.

There were links with these aspects of openness, and the three lifelong learning measures.

High scorers on the strategic learning measure were most likely to enjoy new experiences or challenges, think "outside the square"—and make decisions on the spur of the moment. High scorers on the disciplined learning measure were also more likely to do the first two things—but not more likely to make decisions on the spur of the moment.

Those who had low scores on the need support to learn measure were most likely to strongly agree that they enjoyed new experiences or challenges and thought "outside the square". Those who had high scores on this measure—who most needed support to learn—were most likely to agree that they often did things on the spur of the moment.

Making decisions on the spur of the moment can be linked to two quite different approaches to learning. On the one hand, some were able to do so because of their confidence in navigating the new or analysing what lies ahead (those with high scores on the strategic learning measure). On the other, the ease of such decisions may be, for those with high levels of need support for learning, a sign of their dependence on others (and willingness to go along with their suggestions).

Discussion

Many of the 20-year-olds were equipped with active dispositions to learning. Most challenging for them seemed to be to make learning interesting when they found it was boring, overcoming not feeling like learning or dealing with doubt about one's ability to learn something. While we saw some relationship with earlier cognitive competency measures, strategic or disciplined learning dispositions are *not* dependent on prior cognitive levels: helpful dispositions are available to all. Learning dispositions do show some relationship with whether NCEA was achieved, and with attitudinal competency levels. Strategic or disciplined learning levels are not related to social characteristics, including family resources. The links we found also suggest that these dispositions are dependent on available opportunities to exercise and grow them.

These links indicate experiences that may contribute to the formation of these dispositions in the past as well as current, and the learning identity that has taken shape. Those who scored lower on the strategic learning measure were less likely to have engaged in school, or used internal markers to gauge their learning progress, and they had experienced less positive learning environments. Overall, one gets a sense that young people who have developed fewer learning skills have a thinner platform of interests, supports and attitudes, and therefore are less likely to keep extending themselves. But, intriguingly, risk behaviour—so important to whether young people had left school early, gained school qualifications, experienced unemployment or become a young mother—is unrelated to learning dispositions.

High scores on the strategic learning and disciplined learning measures were associated with gains from current learning, which is likely to indicate a virtuous spiral of individual engagement in ways that allow learning, and looking

ahead, making the most of the opportunities that present themselves. Yet at the same time, the lower scores on the strategic learning measure among those whose main activity is related to employment or experiences of unemployment, suggest that perhaps they have had fewer opportunities in that employment to develop those learning dispositions. In turn, work appears to be less meaningful.

Disciplined learning dispositions were unrelated to whether employment was the main activity, yet we see similar patterns in terms of what work has to offer in the way of enjoyment, ongoing learning and progression. Those with low scores had found it harder than others to make decisions about life, and had been more likely to quit a post-school course without completing it.

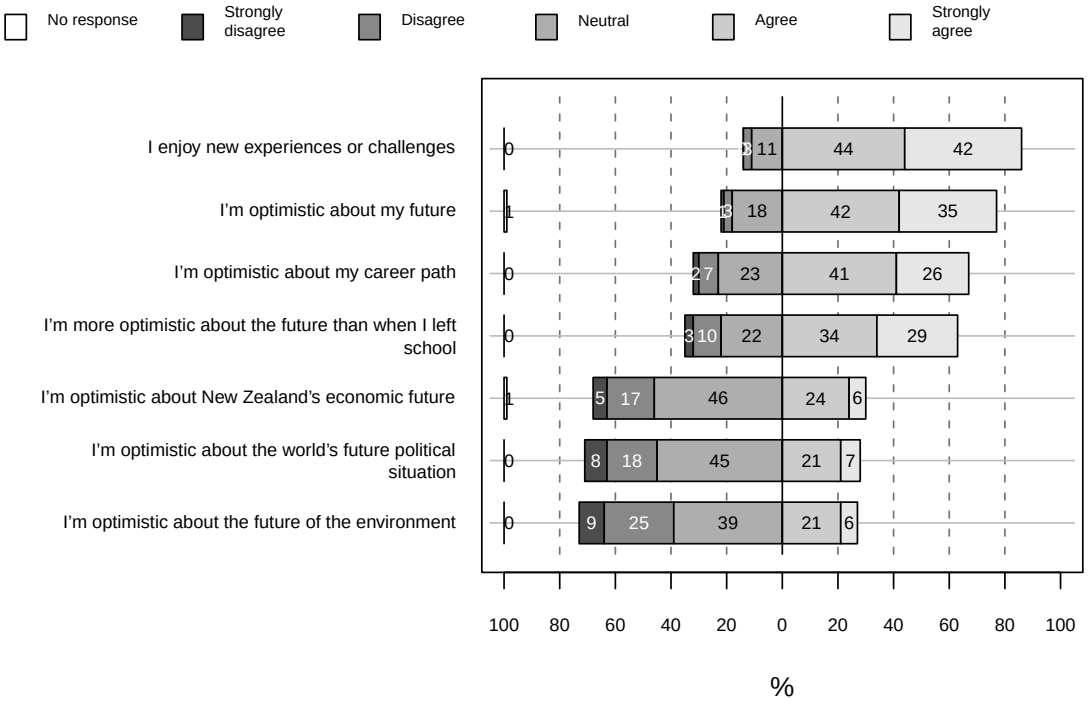
Around a fifth to a quarter of the young people had high levels of agreement with the items in the need support to learn measure, and here there was more continuity with past cognitive and attitudinal competency levels. Yet those who need more support to learn at 20 were just as likely to have gained NCEA Level 3. There appear to be some different underpinnings for needing support to learn, particularly when we look at current experiences, where we can sometimes pick out a pattern of restlessness (more likely to have come through past experiences and uncertainties), and sometimes a pattern of aloneness, which may or may not last.

11. Optimism

How well positioned were the young people in this sample for the future? In this chapter, we focus on levels of optimism, as one indicator of current confidence and the quality of the platform for further movement into adulthood (Gillham, Shatte, Reivich, & Seligman, 2001).

Our measure of optimism includes openness to new experiences or challenges, optimism about personal situation and about economic, political and environmental context. Figure 11.1 shows that the young people were much more optimistic about their own future (77%) than the wider economic, environmental or political context in which that future would be made. Sixty-three percent also reported that they were more optimistic now than when they left school. The mean score on the optimism measure was 6.4 (s.d. 1.6) on a 10-point scale.

Figure 11.1: Optimism



Notes: (Cronbach's alpha = 0.78); Item–scale correlations between 0.30 and 0.63.
N = 401.

Positive views of future prospects were reflective of how positive post-school experiences had been. We found higher levels of optimism among those who:

- had never been unemployed
- had not left a post-school study course without completing it
- said study was the activity they had spent most of their time on since school and who were currently studying full-time
- were very happy with what they were currently doing, and unlikely to want to do something else
- had at least NCEA Level 1 (rates of optimism did not increase, however, with each NCEA level—optimism levels were just as high among those with NCEA Level 1 as they were for those with NCEA Level 3

- had no major regrets about what they had done since leaving school.

Social characteristics and previous competency levels

Optimism levels were unrelated to social characteristics, and generally unrelated to previous competency levels. Higher scores on our age-14 measure of curiosity (teacher rated, with one of the four items "enjoys new experiences or challenges"), and the age-14 measure of "self-efficacy" (also teacher rated, with one of the four items "takes an optimistic view of life"), were found among those who also scored higher on the age-20 optimism measure, indicating some continuity over time, most likely where experiences have continued to support a positive view of personal agency in the world.

Links with age-14 and age-16 attitudes and experiences

There were some links with age-14 attitudes. Optimism levels were higher among those who had been the most confident in their school environment at age 14 (a nonsignificant trend also evident in relation to student engagement, with indications of higher levels of optimism among those with higher student engagement levels). The use of internal markers to gauge progress at school (linked to intrinsic motivation) was associated with higher scores for optimism at age 20. However, there was no link between optimism levels at age 20 and age-14 motivation levels. Those whose main interests outside school put them in the "reading/arts/sport" cluster were most likely to be in the highest quartile on the optimism measure, and those who were in the electronic games or no particular interests, least likely. Those in the lowest quartile for optimism at age 20 were more likely to have experienced feeling left out of activities outside school, or to feel sad in school, than did those who scored higher. Higher optimism levels were evident among those who were in the top quartile on our measure of inclusive family at this age.

Links with age-16 attitudes and experiences were more evident. Higher scores for optimism at age 20 were associated with higher scores on our measures of school confidence, school engagement, attitude to schoolwork, satisfaction with their subject mix, reports of positive learning environments in their classes and use of internal markers to gauge their progress, at age 16. Those who were more optimistic at 20 had less experience of adverse events than others in their 16th year. They had had more positive relations with their family, and were more likely to experience friendships that were extending, and be praised for achievements, included in groups they wanted to be in and taking action about a situation that concerned them, when they were aged 16.

Experiences since leaving school

While those who had high levels of optimism were just as likely to mention something that had been particularly difficult for them in leaving school, they were somewhat more likely to say they had learnt from the experience what was important to them than those with low levels of optimism. Those with the highest levels of optimism were more likely to have had time out or a gap year, and if they had, to have enjoyed it (rather than not)—this association may be evident because students who had higher levels of optimism were more likely to have had time out after school.

Links with age-20 attitudes and experiences

We found higher levels of current optimism were associated with:

- higher levels of strategic and disciplined learning dispositions, and lower levels on the need support to learn measure

- having their main current activity connected to past interests or experiences
- supportive and close family relations (and lower levels of family pressure)
- extending and solid friendships (but unrelated to whether school friends had been kept or not)
- having creative, sports or community interests
- valuing kindness, being with family, doing well at work or study, at an interest, and/or at sport, having good health and contributing to community or cause
- feeling that having more independence and/or getting a job or establishing a career and/or studying what they want and in ways that suited them was one of the best things about leaving school; conversely those who found the hardest things about leaving school were working out what they wanted to do, finding a job, establishing a career, making enough money and making their own decisions about life, had lower scores on the optimism measure.

Sports and informal physical activity, and going to church or taking part in spiritual activities, were less likely to be activities shared with friends among those with low optimism levels.

Those with low levels of optimism were less likely to feel it was not very important to keep up to date with current events. But this group was just as likely as others to have voted in the general and local body elections.

Lower levels of optimism were related to more experience of depression (though having had experiences of depression did not mean one could not also be generally optimistic).

Those with low levels of optimism were just as likely as others to have definite goals for the next three years. But views that it was very important to have goals was linearly related to optimism levels: 36% of those with low optimism levels thought so, cf. 50% of those with middling levels, and 72% of those with high optimism levels.

This link between goals—thought of the future and a sense of personal agency toward it—and optimism is consistent with what we found among those currently studying. We found that optimism levels were linked to how positive people felt about their courses. What is interesting is that the differences were evident not so much in terms of teacher–learner relationships, feedback or support, or enjoyment of the course, but in terms of deepening understanding and confidence. This suggests that the teacher–student relationship was at least two-way, rather than simply optimism lending itself to a general willingness to receive things positively. Thus, those who were most optimistic were much more likely to strongly agree that their course was helping develop the ability to plan their own work, problem-solving skills, increasing confidence in tackling unfamiliar problems, reflecting on things learnt, provided the right degree of challenge and difficulty, where they felt part of a group of staff and students committed to learning, and liked the course structure.

This difference in emphasis was not due to differences in course level: those with low levels of optimism were just as likely to be found in undergraduate level courses as those with high levels of optimism; similarly with different levels of certificate courses. Levels of optimism were unrelated to whether a young person had changed their main course of study, or gained a qualification by the age of 20.

Optimism levels were unrelated to whether people were employed or studying as their main activity. Among those who were employed, those with low levels of optimism were more likely to say the reason they took their current job was because they needed money, and any job would do; and less likely to say that they had seen through previous experience that the job would suit them. They were less likely to say they enjoyed the area of their work or had good learning opportunities or that, overall, they were doing what they wanted to be doing. However, they were just as likely as others to think they would be in the same job in three years (without the degree of satisfaction experienced by others).

Those who were in the top quartile on the optimism measure were most likely to think it was very important that a job allowed time off for leisure or voluntary activities, had opportunities for promotion, and those in the lowest quartile, least likely to think it very important that a job allowed a lifelong career or creativity.

Experiences over the past year showed some differences related to optimism levels. Those with high levels of optimism were most likely to have made new friends, been selected for an event or team, and least likely to feel they had not had enough freedom, or that they had had nothing to do and been bored. Those with low levels of optimism were more likely to feel they had been left out of things, and more likely to have thought about or attempted suicide.

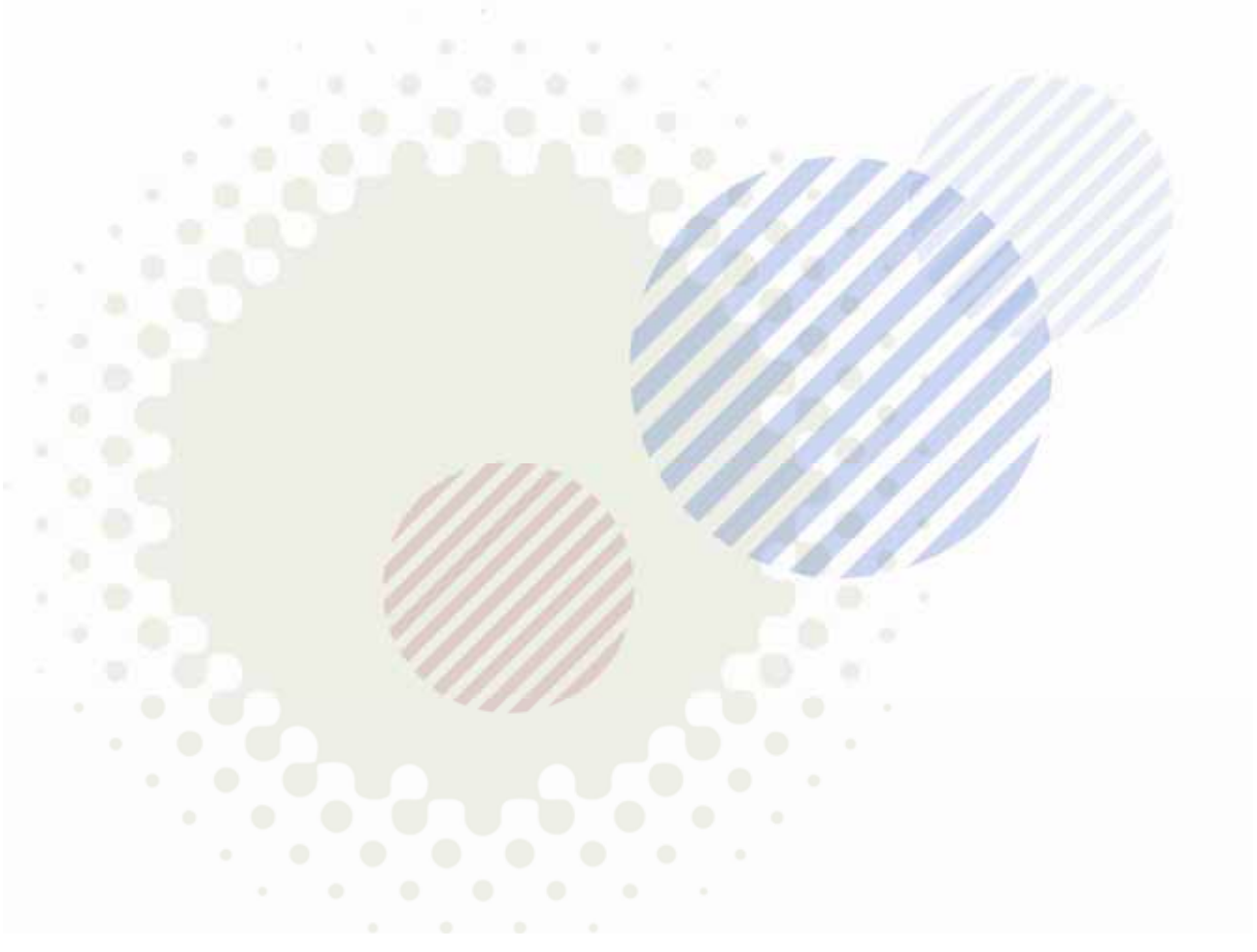
Statistical modelling of which variables might best account for differences in optimism levels at age 20 reduced this array to five: whether young people were happy with their current situation; had any major regrets; had friendships that extended them; thought goals were very important; and had had an easy transition from school. The model that included these five variables could account for 28% of the variance in scores on our optimism measure. Having no major regrets of the time spent post-school was a major contributor to this model.

Discussion

Optimism is a form of confidence, and confidence allows action. Optimism does seem to be linked with finding purpose in current study or work. This chapter suggests that it is a useful pointer to how well young adults are faring, and the soundness of their platform for further developing as adults.

Those who were the most optimistic at age 20 tended to be students, whose path from school was straightforward, provisioned with more sources of advice and which had some continuity with school. Higher levels of optimism were also associated with positive school experiences, supportive families and extending friendships, being accepted and taking action and fewer adverse events in mid-adolescence, and currently. Looking back, those who were most optimistic had been well positioned to relish making their own decisions when they left school, in contrast to those who had low levels of optimism.

Those who were the least optimistic included those who had experienced unemployment, or had quit a post-school course without completing it, and not surprisingly, those with some major regret about what they had done post-school. It also includes those who did not leave school with a qualification and those who did not find the transition from school easy. The model provides a succinct pointer to the importance of post-school experiences in confidence about the future, as well as the links between having confidence, and envisaging the future for oneself, believing in the importance of goals.



Forming adulthood

12. Forming adulthood—conclusion

When they were 16, the Competent Learners @ 20 participants who were at school anticipated a greater autonomy in their decisions about what to do and how to do it, with some mixed feelings. It is generally recognised that what might once have been thought of as a transition from one world—school—to another world—post-school study or work—is now much more complex than it was (Rea & Callister, 2009; Vaughan, 2010). There are more post-school study options available, including options that offer courses at the same qualification level as secondary school qualifications. In the first few years after leaving school, it is possible to alternate study and work; it is also possible—indeed common—to combine study and work.

Yet underneath the complexity we have found often a considerable continuity between school and post-school experience.[45] Continuity does not mean they were doing *what* they were doing at school, in the way they were doing it at school, but it means that they carried key "habits" (ways of acting, ways of making meaning, ways of finding purpose) and confidence, or lack of it, with them into the adult world where they were making decisions and offering themselves to others' decisions (course entry, employment, friendship, flatmates, romance and partnership). School qualifications certainly mattered in terms of the options available to them, both as markers for other people of what they might have to offer, and also in terms of what habits they had developed, as part of their own identity.

By being able to look backwards, using a number of different "outcomes" as our units of analysis—NCEA qualification, school-leaving age, main activity at age 20, experiences of unemployment, young motherhood, learning dispositions and optimism—we were able to identify a set of what seemed like predisposing experiences, resources, responses and previous competency levels. But by also being able to look forwards, using as our units of analysis previous performance on the study's measures of cognitive competency, including mathematics and literacy, and its measures of attitudinal competency (perseverance, communication, curiosity, self-management), we also found that previous competency levels are not determinative.

Low levels of mathematics and literacy alone, or low levels of attitudes alone, do *not* automatically presage later disengagement, early school leaving or leaving without a school qualification. An important finding from this phase is that most of those who did have low levels on our competency measures did make progress through school, and did gain useful qualifications. Low levels of performance in school certainly need attention so that children and adolescents do make such progress. The progress of the low performers in this study over time indicates that such attention must have been given by their teachers and parents, with learning opportunities (both in and outside classes) where peers would support each other's learning and development.

Another important finding from this phase of the study is the role of attitudes in making progress and gaining useful qualifications. Students with similar levels of literacy and mathematics had different success with qualifications. What made the difference for those who gained NCEA Level 2 compared with those who gained NCEA Level 1, or those who gained some credits but no NCEA level, were their attitudes—the habits of perseverance, communication, curiosity, self-management—and these in turn were linked to levels of motivation—seeing a purpose in learning, in what school had to offer. Motivation and attitude levels in turn are linked to student engagement, positive learning

[45] This continuity is also evident in the combination of study and paid work—since many were already doing this at age 16, while they were at school.

opportunities and the development of positive ways of spending time (in interests, with friends, with family). Family resources played some part in this also.

Habits and opportunities—legacies for early adulthood

Whether we were using the lens of qualification, leaving age or main experiences post-school to look at pathways from school, and current platforms for adulthood, including learning dispositions and optimism, there were certain experiences and habits that kept coming up,[46] and which would make it less likely that a young person would have found a straightforward, supportive, supported and meaningful path from school as they exercised their independence as young adults. This set of experiences and habits was not uniform or universal for every young adult who had experienced unemployment, taken on early motherhood, not completed a post-school course, found themselves in a job that they would prefer not to be in or experienced major regrets about their post-school pathway. But they do provide consistent indicators; the more indicators evident, the more at risk a young person would be of not being able to make a reasonable platform for adulthood. Table 12.1 sets these out.

Table 12.1: Indicators of risk to satisfying pathways from school to early adulthood

Low levels of mathematics performance at age 5 and onwards *(mathematics performance was a somewhat stronger indicator than literacy, but lack of reading enjoyment—how one uses leisure time—is another consistent indicator)*
Low levels of reading and writing at age 5 and onwards
Low levels of attitudes (overlapping with the key competencies in the New Zealand Curriculum) from age 6
Low levels of reading enjoyment—in one's own time as well as in school
Lack of a clear leisure interest, or else overinterest in electronic games
Experience of bullying—whether as a victim, bully or both
Low levels of student engagement in school at 14
Low levels of feeling supported and treated like an individual at school at 14
Low levels of positive views of learning opportunities at 14 and 16
Low levels of motivation at 14
Low levels of satisfaction with the range of subjects they take at 16
Lower levels of useful advice about what to do post-school
Thinking of having "time out" after leaving school, particularly if there are no plans for that time out
Leaving school at 15 or 16
Risky behaviour at 14 and 16: experience with alcohol, sex, trouble at school
Friendships more likely to be with those who have risky behaviour; less likely to be challenging and talking about hopes and plans for the future
Values more likely to be focused on "standing out"—how one appears to others
Having goals is less likely to be important
Family relationships more likely to be problematic
Low family income through childhood and adolescence

[46] These are the experiences etc. that we had data on, and which we included in our analysis at age 20 because they had shown links with competency performance at previous ages. But there will be other indicators of risk to the successful formation of a satisfying pathway that we do not have information about.

These indicators are related. Student disengagement and risky behaviour compound each other: what happens outside school becomes more important than what happens inside school, and identity forms around the habits associated with the relationships and experiences outside school. If these do not have a real learning component, if they do not develop some sense of interest in things not yet known, and a desire to gain knowledge, skills and understanding toward some larger purpose, then they are unlikely to offer a valid alternative to school, that might serve some of its functions in a way that would better reach some adolescents. Where these outside relationships and experiences exasperate parents, then communication with parents, and their ongoing ability to support, can become eroded. Important sources of information, support and challenge for adolescents are left behind when students disengage from school: teachers and their school peers. Those most at risk of uncertain and dissatisfying early adulthood pathways, and whose initial adult platform seemed most vulnerable to economic and social change, were most likely to leave school with no clear idea of where they wanted to go: who they could become, and how. There was little institutional support or systems to support them. Family social and cultural capital, and financial resources, could help; but it is important to note that this spiral leading to the rejection of school was not limited to those who did not have much social or cultural capital.

Straightforward and not so straightforward pathways from school

As with other studies of the transition from school (Curtis & McMillan, 2008; Loader & Dalgety, 2008; OECD, 2010), we found that school qualification levels are related to the pathways young people take. In our study, and in Loader and Dalgety's analysis of the New Zealand 2005 and 2006 national school-leaver cohorts, the most straightforward pathway leads from NCEA Level 3 to university. The group who carried NCEA Level 3 with them on their path from school also had greater confidence in learning, and higher levels of learning dispositions to support that learning. They were also the group most able to call on advice about their post-school pathway from teachers, both at school and in a higher education institution. They had available one of the "well organised pathways connecting initial education with work and further study" that the OECD (2003) included as one of the six aspects of successful transition from initial education to working life. Apprenticeships were also evident as one of these organised pathways.

But for others, the pathways in early adulthood seemed less straightforward. Part of this is related to their own uncertainty when they left school, the lack of attraction to something or a search for school-level equivalent qualifications. Age-16 thoughts of the path they were likely to take immediately post-school do play a role, over and above school qualification levels, with those who were employed (without study) at 20 much more likely to have been thinking four years earlier of employment or non-university study, and those who were neither studying nor employed at 20 much more likely to have been thinking of non-university study, or time out, as they approached the end of schooling.

But along with individual uncertainty on leaving school, young people on less straightforward paths appeared to have had less advice available to them in making choices of study or employment; this may have resulted in some of the decisions they made, that they later regretted, or which did not lead them onto satisfying employment paths. Decisions that do not support a satisfying pathway are costly, not just in terms of lost time; financial debt could also be incurred.

Questions around employment in early adulthood

The fact that employment was not study might have appealed to those who saw it as their first step into adulthood, as much as what it had to offer in the way of money, and what could be done with money. But the immediate employment route had uncertainties, particularly for those who left school without a qualification, who were most likely to have experienced unemployment. Experiences of unemployment as a young adult dent optimism, and this group did seem to be standing on a less secure ground than others at age 20. They did not on the whole see further study as a way forward.

They put more emphasis on employment as the path forward. Yet it was less important to them to do well in their work, suggesting that their experiences of unemployment had made them cautious about framing their identity in terms of work. Employment seemed to offer them less in the way of ongoing development.

Another post-school trajectory that needs policy thought is those who have gone into employment of a kind which has not extended them. They would not be counted among the neither studying nor employed group (depending on when this was counted—some indeed were among this group a year later, as we found out when we came to undertake the qualitative component of the age-20 phase). But this did not necessarily mean they had made the solid ground they would need for long-term employment satisfaction, or for finding their feet in an increasingly complex job market, with its emphasis on continual learning and adapting to changing requirements.

Just under half those who had employment at age 20 were doing what they wanted to be doing, and only 21% thought they would still be in their current job in three years time. Likely stability was greatest for those who had apprenticeships, worked in trades or technical areas or had professional or management roles: where there was opportunity for changing roles and ongoing learning. The sense that their current employment was what they wanted to be doing was more likely for those who could link it back to past plans, and who enjoyed this employment. Likely stability in their current job was linked to it providing a purpose—it was something they wanted to be doing—and to training opportunities, challenge and opportunities for progression, and not so much to satisfaction with pay. Thus, both job "match" and ongoing learning matter in terms of early satisfactory career identification.

However, overall, the young adults' current workplaces were offering more in the way of working conditions and enjoyable workmates than they were in on-the-job training (informal was more likely than formal), the right level of difficulty, opportunities for progression and pay.

Post-school study in early adulthood

Those who were in formal study at age 20 were largely positive about their learning and what they would gain from their course, whether they were at university or undertaking certificate-level courses. Changing the main course of study, as 16% had done, was not problematic. Perhaps this is because such changes occurred within the wider framework of an undergraduate degree for this sample, or perhaps because it had led to more satisfying or fitting courses.

But leaving a post-school study course without completing it was associated with regret about decisions taken post-school. Those who had done so (11%) were likely to have started their course less well equipped for ongoing learning—not just in school qualification levels and all the patterns of engagement in learning that we found to be associated, but also with greater risk behaviours, fewer interests or friendships that might extend them or help them identify areas of career interest, and with less support from family and lower family resource levels. They would have liked more guidance on their school subject choices. Most of those who did not complete their courses had been studying for certificate-level courses. They were less likely to have gained qualifications, or be studying at 20; and they needed more support to learn. Not completing a post-school course in the first few years after school appears to be not just a one-off event or decision (often taken without any advice). It signals ongoing difficulty with learning.

We also found difficulty with ongoing learning, and similar patterns from the past and in the present in terms of interests, friendships and family support, among those who have experienced unemployment, and those who are currently neither studying nor employed. The picture is more complex among those who have moved more quickly than others into one of the other key hallmarks of adulthood: parenting. We see similar lower school qualification levels, higher levels of risky behaviour and a not unrelated tension in family relationships. Post-school, we see more

noncompletion of courses—but this was sometimes because of becoming a mother, with new demands and responsibilities. Yet the young mothers did not carry with them so much earlier disengagement with learning. Their lifelong learning approaches and mental health were similar to those of other young women in the study. Their orientation toward family, and improvements in their levels of family support, seem to provide a buffer, and motherhood a positive purpose.

The patterns we found in earlier phases of the study showed the importance of family resources in encouraging school motivation, and in providing opportunities for children and young people to be challenged to gain new skills and knowledge outside school that build both knowledge and key competency levels. However, family resources were not related to whether 20-year-olds needed support to learn, or to levels on the strategic learning or disciplined learning disposition measures. Nor were strategic or discipline learning dispositions dependent on high cognitive competency levels: these dispositions are available to all, underlining the importance of ensuring we provide ongoing opportunities for their development and use in adult employment and study. Around a fifth to a quarter of the young adults did need support to learn—more than they were probably getting—and this need for support to learn was related to prior competency levels.

Learning dispositions at 20 do bring some of the past experiences and reactions with them, but they are also related to current learning opportunities, in formal study or employment. This relationship and the sorts of gains from learning that are reported with high levels on the learning disposition measures suggest a virtuous spiral where the ways that post-school learners engage with the opportunities that present themselves allow them to develop those dispositions further. This is another reason why learning opportunities within employment—as well as within study—are important for young adults.

Students were the most optimistic of the 20-year-olds. We cannot tell whether that is because what they were doing had more continuity with their already established identity, had good learning opportunities or because they could still easily position themselves as prime decision makers on the direction of their lives. We come to the end of this report with new questions about what will happen in the next few years as students complete their qualifications and enter the employment market, remain in study or take what can seem the sideways move of travel. What happens to learning dispositions with continued employment, or further experiences of unemployment? Do we see higher levels of learning dispositions in those who continued their studies compared with those who continued in employment? Do different levels of age-20 learning dispositions and levels of optimism show in different levels of post-school qualification achievement? What use is made of “second chance” qualifications, and in what contexts do they successfully scaffold to engaging employment or other study?

How important for young people are opportunities to learn within employment in a recession: how much do they colour decisions to stay in jobs in times of uncertainty? How well do the jobs that they have in fact provide both ongoing opportunities to keep learning—and challenge to use their learning? Seventy percent of these young adults were sustaining themselves or had needed loans: What impact have these loans had on their choices and options as many move away from formal study? How do levels of risk activity change? How do levels of emotional difficulty change? Would we find that the patterns that seem established in early adulthood persist if we were able to return to the young people in their mid-twenties?

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Appendix A: The data and their management

Managing, combining and extracting useful information from the data-sets that together hold the data from a longitudinal study is a complex challenge, particularly when the study subjects are following a diversity of paths.

In the age-20 phase of the Competent Learners study, the sources of data are:

- data from earlier rounds from the study (ages 5, 6, 8, 10, 12, 14 and 16)
- qualifications when they left school
- enrolments (and completions) in tertiary study up until the end of 2008
- the current round of the study, undertaken in 2009.

These four different sets of data do not always match exactly. In this appendix, we outline some of the issues we have dealt with and how we have dealt with them. While there will always be issues with missing and matching data, particularly for longitudinal studies, there may be lessons here for subsequent studies undertaken in New Zealand.

Missing data

In the current analysis we are using some of the measures, both direct and derived, from the earlier rounds of study. This would be simple if we had complete data in and from each round, but that is never the reality.

- At age 12 we had 496 in the study; at age 14 there were 476; and at age 16 there were 448, 28 of whom had already left school. At age 20 we approached all the young people who were in the study at age 12, and managed to "recover" nine who had not been in the study at ages 14 and 16, and about the same number who had not been in the study at age 16. We lost about 30 young people between ages 16 and 20.
- We have been able to impute missing values of some of the variables, but cannot supply some information (examples are what the young person planned to do after school, or whether they were satisfied with the subjects they were taking at school at age 16). We used multiple imputation, using the functions transcan and fit.mult.impute in the Design and Hmisc libraries (Harrell, 2001). Imputation is usually considered "safe" or "acceptable" if either a very small proportion of the data are missing, or the data are considered to be missing at random (there is no pattern to the missingness). In our case the data were not missing at random (Māori and Pasifika young people were more likely to have been out of the survey; low-achieving young people were more likely to have missing cognitive and attitudinal measures at age 16, etc.), but seldom were more than five percent of the data missing. Imputation was therefore used where the data could have been obtained but were not (for example, measures of attitudinal competency, even if the young person had left school by age 16), but not where this would have been impossible (for example, a qualification that was dependent on the young person being at school).
- A few of the young people had left New Zealand, temporarily or permanently, but were still part of the study, which meant that there were gaps in the Ministry of Education data for these individuals.
- The attitudinal measures at age 16 were derived from teacher reports, and so were not available for the young people who were no longer in school (nor for those studying by correspondence, as their teachers did not have the detailed personal knowledge needed to respond to the questions used to form the measures). In some places these were imputed, in others, the measure was converted to quartile groups, with a fifth group for those for whom we had no measure.

Matching data-sets

The Competent Learners sample was born between July 1989 and June 1990. Consequently, throughout their school careers, and into their tertiary years, some participants have been in one year of study, and the rest in another. We asked how *old* they were when they left school, but this information is not immediately useful in combination with the Ministry of Education administrative data, as we did not ask in which *year* they left school. Even then, however, some would have left at the end of the year, and some during the year, which would not preclude tertiary study in the same year that they left school. So the match would still not be perfect, but it would have been better. We also should have asked about their immediate post-school destination, rather than relying on the Ministry of Education administrative data.

A big part of data preparation is data cleaning, which includes removing apparent contradictions and, sometimes, filling gaps in the data. For example, some of the study participants did not have NCEA qualifications (they may have been overseas, or have left school early, or attended a school that offered alternate qualifications). If these young people achieved something equivalent to UE, then they would be able to attend university. Or, going backwards, it was possible to use registration for university courses to "backfill" some of the gaps around having NCEA Level 3 qualifications. But it was not possible to do something similar with Level 1 or Level 2 qualifications.

Somewhat similarly, we asked the young people who were studying at the time of their interview in 2009 about where they were studying, and from the Ministry we obtained data about all tertiary registrations for the previous year. We operated under the assumption that the Ministry data were correct (at least our data would then always match Ministry data), and used the tertiary registrations to fill gaps in school-level qualifications (as described above). However, when the Ministry data were put together with responses to the interview questions, there was some disagreement, some of which would be because some of the young people had changed what they were doing in the intervening year, and some because of "dirty data".

For example, when we looked at the highest school-level qualification (Ministry data) compared with what was said in the interview, we had two young people with apparently no more than Level 1 qualifications indicating that they were studying towards a degree, as were 20 who had no more than Level 2 (so far as we could tell). When we looked at their tertiary registrations, 35 who had not registered for tertiary study by 2008 said in 2009 that they were studying towards a degree at a university (15) or at a polytechnic (20), and six who had registered for a certificate by 2008 in 2009 indicated they were studying for a degree. It is impossible to know whether this is correct or not.

There were also lesser anomalies. For example, of the 190 known to have registered for a bachelor's degree, 10 indicated that they were not studying in 2009 and a further eight appeared to be studying at a polytechnic. It is quite possible that these young people had either completed their degrees, or dropped out of university study or changed their course of study. Our data cleaning was thorough, but not sufficiently thorough that we checked each and every one of these cases, trying to piece together exactly how these apparently contradictory pieces of information could or did fit together. Rather, we accepted both the statements or records, using at any particular time the version of reality that was more germane to the particular research question we were answering (or would more closely match other data we were using for that question), and are acknowledging here that things could, and did, change and that we have measures around their study taken at two time points, possibly on either side of these changes—and that errors can creep into data-sets, and sometimes show up when the data are cut in different ways.

School-level qualifications

The Ministry of Education provided three data-sets that provide information about school-level qualifications:

- endorsed qualifications (details on those with NCEA qualifications that have been endorsed with merit or excellence)
- a transitions table that is a cohort-based record with, for each calendar year, information including the individual's school qualifications and tertiary study
- school qualifications for each individual, and the year in which these were attained (used to build the transitions table)
- details of all achievement and unit standards results for each student.

Missing from these data are details on those who studied outside New Zealand (for one or more years), and those whose school qualifications were through a system other than NCEA (Cambridge or Baccalaureate), or who left school before being registered for NCEA (one individual in our study, who left school at age 15 and has been in full-time work since then, and can be assumed to have no qualifications).

Those who studied outside the NCEA "net" can be assigned the equivalent of UE if they are found to have studied at a university, but others, who entered the workforce, or studied at other tertiary institutions, are harder to place.

NZQA has developed a measure of achievement (the expected percentile) for NCEA Levels 1–3 to measure the *quality* of students' NCEA qualifications. A measure of grade point average (GPA) has also been developed by NZQA. Where a comparison of the two measures has been made, the story told by each has been found to be pretty similar (Ussher, 2008). We have not made extensive use of the expected percentile for a number of reasons. Firstly, we would in practice be restricted to using the expected percentile from NCEA Level 1 results as some young people did not continue to Level 2 or Level 3. This measure would have been achieved largely when the young people were aged 16, and from that age we have our own measures of cognitive and attitudinal competency which we have shown to be closely related to performance in the NCEA (Wylie, Hipkins, & Hodgen, 2008), and which we have or can impute for all the young people (the correlations between successive cognitive competency measures, in particular, are very strong). Secondly, how well the young people did in their NCEA qualifications when aged about 16 is not the major focus of this report, but what qualifications they attained at school is, so we have made much more use of these measures, which are more inclusive of those who left school early and those who completed their secondary education.

Tertiary study

Information about tertiary study can be derived from these Ministry of Education data-sets:

- completed tertiary qualifications (although at age 20 most of those who had studied since leaving school continued to study)
- the transitions table (see above) that included details of the type of tertiary institution, whether the student appeared to have had a gap between secondary and tertiary study, and the tertiary qualification they were studying towards; whether in a particular year they were studying at school and/or a tertiary institution; if a particular year appeared to be their first year of tertiary study; whether they achieved UE; and a measure of achievement (the expected percentile derived by NZQA) for NCEA Levels 1–3
- tertiary courses attempted and/or completed

- industry training
- targeted training.

Investigation of these data-sets demonstrated very clearly that the young people frequently did not have a single, or direct, path through their post-secondary study. Reconstructing what they had done and why from the data-sets alone is extremely difficult, given the number of possible paths taken. For example, some people who studied at university also studied at other institutions. Sometimes this was a case of complementing the main course of study with another, sometimes gaining a workplace qualification (like first aid); sometimes a change in direction.

Those who had industry training may also have had targeted training, or studied at a tertiary institution (or more than one, or of more than one type).

At age 20 it was also very hard to distinguish between those who did not and would not complete the tertiary course/s they started and those who were still on track to complete.

Where we had multiple possible stages on the path of a young person occurring simultaneously, we needed to prioritise them. For example, the same individual may have been studying at more than one of the tertiary qualification levels in the same year. If this was so, we used the highest level reported. In this way, someone who apparently had industry training in 2008 *and* was studying at a tertiary institution would be categorised as the latter, just as someone studying for a Level 1–3 certificate *and* towards a bachelor's degree would be held to be studying towards the degree.

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Appendix B: Variables used in this report

As we had done in previous phases, we used sets of related questions in the interview and self-report survey to form factors that summarised aspects of the young peoples' experiences. We used factor analysis (using SAS/STAT® v 9.1.3; principal factor analysis with varimax rotation) to identify possible factors and calculated Cronbach's alpha as a measure of reliability for each.

The possible factors that were based on few items, or that were capturing a rare characteristic (for example, risky behaviour) were turned into binary measures, each with an extreme category based on 16–35% of the young people, and a more average category (for example, the 19% who showed some risky behaviours and the 81% who showed few if any). The cut-points were derived in one of two ways. If the behaviour was very rare, then the frequencies of the actual mean scores for the items in the "factor" were used to determine a factor score that cut off about the most extreme 20% of the young people. Otherwise, a weighting of 1 was given to a response of 1 on the scale (this might have been for a response of "strongly agree", or "very often", depending on the scale), a weighting of 0.5 was given to a response of 2 (and, effectively, a weighting of 0 to all other responses), and the total of the weights was calculated. A cut-point on these scores was selected such that an appropriately small proportion of the young people fell into one of the extreme groups.[47]

For some of the factors, where both extremes were of interest, we divided the young people into three or four "quartile" groups: those scoring below the lowest (first) quartile; those scoring above the highest (third) quartile; and, if there were three groups, all those between, or, if there were four groups, those scoring between the first quartile and the median, and those scoring between the median and the third quartile. These groupings were used in cross-tabulations to explore associations between other factors, and responses to the interview and self-report questions.

Below we provide a description of the age-20 factors and other variables, followed by an outline of the age-16 and age-14 factors and competency measures, used in cross-tabulation and modelling.

Age-20 variables

1. Scale variables

These variales were constructed from:

- student responses to batches of questions in the self-report
- student responses to batches of questions in the phone interview.

To match what was done in previous rounds of data analysis, the scale variables were put onto a 1–10 scale where, as indicated for each scale, typically a low score corresponds to a little of the quality being measured, and a high score corresponds to a lot of it.

The first three scales are the learning dispositions we measured at age 20. The first two scales are based largely on the items from two of the ELLI dimensions, and the third is more similar to a measure we had at age 16 (although that one was based on teacher judgements rather than self-report).

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[47] These cut-points had to be determined specifically for each of the groups of items or "factors", depending on the responses to those items.

Need support to learn [learning dispositions 1]

(α = 0.85) Item–scale correlations between 0.41 and 0.63

A high score corresponds to strongly agreeing that:

- When learning is hard, it's usually because I didn't have enough help.
- When I'm stuck, I don't usually know what to do about it.
- I tend to avoid trying to learn new things because I don't like feeling confused and uncertain.
- When I'm not able to master something, it's usually because I don't know how to go about it.
- When I don't understand something, I tend to struggle with it for a while.
- When I have to struggle to learn something, I think it's probably because I'm not very bright.
- When I learn things well, it's usually because I had plenty of help.
- When I have trouble learning something, I tend to get upset.
- Sometimes when I start a task I don't know what I am going to do until I see my friends getting on with it.
- I find it difficult when my teacher/tutor/mentor/boss criticises my work.
- I find it difficult when I'm not given clear instructions about how to do something.
- I know it's easy to learn if all my friends are learning the same as me.
- I need others to help me learn.
- I find learning hard when I'm not told how to go about it.

This is the first of the measures using the scales from ELLI, and corresponds to the fragility and dependence scale, and uses all but two of the items on that scale (scale score mean of 1.57, s.d. of 1.47).

Strategic learning [learning dispositions 2]

(α = 0.74) Item–scale correlations between 0.24 and 0.51

A high score corresponds to strongly agreeing that:

- I usually know whether I'm going to find something easy or hard to learn.
- I often have a good idea of how long something is going to take me to learn.
- When I find learning boring, I can usually find a way to make it interesting.
- If I do get upset when I'm learning, I'm quite good at making myself feel better.
- I often change the way I do things as a result of what I have learned.
- I know that if something is important I can find a way to learn it.
- I know I can learn in my own way, even if my friends think it's a waste of time.
- I think about who I might need to ask for help if I get stuck.
- I like to find my own ways of doing things.
- I like to find my own ways of doing things even if everybody else is doing it a different way.

- I ask for advice or help on tasks I'm not sure about how to do.

This is the second of the measures using the scales from ELLI, and corresponds to the strategic awareness scale, using 11 of the 16 items (scale score mean of 6.61, s.d. of 1.05).

Disciplined learning [learning dispositions 3]

(α = 0.77) Item–scale correlations between 0.22 and 0.53

A high score corresponds to strongly agreeing that:

- I always begin a task without thinking about it first (reversed).
- If I get stuck with a learning task, I can usually think of something to do to get round the problem.
- I have ways of making myself learn if I don't feel like learning.
- I think about everything that I will need before I begin a task.
- I often look back and think about what I have learned.
- When I strike a problem with something I'm doing, I keep trying until I solve it.
- I have good concentration when I'm working on something I'm interested in/I have to do.
- I usually check that work I do is correct and look for improvements I can make.
- I like to finish tasks I start.
- I usually turn up to appointments or meet people on time.

This is a mixture of five items from the strategic awareness scale from ELLI and some items that are similar to those used at age 16 (scale score mean of 6.76, s.d. of 1.18).

Risky behaviour

(α = 0.80) Item–scale correlations between 0.23 and 0.61

A high score corresponds to lots of times or quite often:

- Being a passenger in a car driven by a drunk driver.
- Smoking marijuana.
- Doing other drugs.
- Driving while drunk.
- Drinking alcohol until I passed out.
- Binge drinking (ie, drink to get drunk/wasted).
- Doing something you regretted when drunk.
- Being pressured to do something you didn't want to.

This was more often used as a binary variable identifying the 75 (19%) who reported these activities most often (scale score mean of 4.92, s.d. of 1.39) versus the rest (mean of 1.77, s.d. of 1.17).

Depression

(α = 0.69) Item–scale correlations between 0.31 and 0.53

A high score corresponds to lots of times or quite often:

- Feeling sad for no reason.
- Thinking about or attempting suicide.
- Feeling left out.
- Sought treatment for mental health problem.
- Health problem that required ongoing medical care/hospital visits.

This was more often used as a binary variable identifying the 75 (19%) who reported these activities most often (scale score mean of 3.88, s.d. of 1.79) versus the rest (mean of 1.35, s.d. of 0.93).

Rejection experiences

(α = 0.66) Item–scale correlations between 0.35 and 0.52

A high score corresponds to lots of times or quite often:

- Being hassled about your sexuality.
- Being hassled about your culture.
- Being hassled about your body size/shape.
- Hassling/bullying someone.
- Being hassled/bullied.

This was more often used as a binary variable identifying the 95 (24%) who reported these activities most often (scale score mean of 2.53, s.d. of 1.09) versus the rest (mean of 0.30, s.d. of 0.40).

Optimism

(α = 0.78) Item–scale correlations between 0.30 and 0.63

A high score corresponds to agreeing or strongly agreeing that:

- I enjoy new experiences or challenges.
- I’m optimistic about my future.
- I’m more optimistic about the future than when I left school.
- I’m optimistic about my career path.
- I’m optimistic about the future of the environment.
- I’m optimistic about New Zealand’s economic future.
- I’m optimistic about the world’s future political situation.

This was more often used as a binary variable identifying the 95 (24%) who reported these activities most often (scale score mean of 8.31, s.d. of 0.86) versus the rest (mean of 5.81, s.d. of 1.22).

Solid friendships

(α = 0.83) Item–scale correlations between 0.53 and 0.67

A high score corresponds to agreeing or strongly agreeing that:

- I consider my friends to be good friends.
- My friends respect my feelings.
- I wish I had different friends (reversed).
- I trust my friends.
- I feel alone or apart when I am with my friends (reversed).

This was more often used as a binary variable identifying the 147 (37%) who reported not having solid friendships (scale score mean of 6.57, s.d. of 1.03) versus the rest (mean of 9.13, s.d. of 0.77).

Supportive friendships

(α = 0.77) Item–scale correlations between 0.50 and 0.63

A high score corresponds to agreeing or strongly agreeing that:

- My friends and I talk about our hopes and plans for the future.
- I like to get my friends' point of view on things I am concerned about.
- My friends listen to what I have to say.
- My friends encourage me to do well.

This was more often used as a binary variable identifying the 129 (32%) who reported not having supportive friendships (scale score mean of 6.21, s.d. of 0.95) versus the rest (mean of 8.51, s.d. of 0.95).

Close supportive family

(α = 0.86) Item–scale correlations between 0.55 and 0.75

A high score corresponds to agreeing or strongly agreeing that:

- I like spending time with my family.
- I do interesting things with my family.
- I go to my family for advice.
- I feel close to my family.
- I feel comfortable with my family.
- My family really help and support each other.

This was more often used as a binary variable identifying the 111 (28%) who reported not having a close, supportive family (scale score mean of 5.31, s.d. of 1.36) versus the rest (mean of 8.41, s.d. of 0.98).

Family pressure

(α = 0.76) Item–scale correlations between 0.47 and 0.62

A high score corresponds to agreeing or strongly agreeing that:

- I need more privacy from my family.
- My parent(s) have their own problems so I don't bother them with mine.
- My parent(s) expect too much from me.
- My parent(s) have too much say in my life.

This was more often used as a binary variable identifying the 115 (29%) who reported family pressure (scale score mean of 5.00, s.d. of 1.46) versus the rest (mean of 2.11, s.d. of 1.31).

Positive about father

(α = 0.81) Item–scale correlations between 0.61 and 0.70

A high score corresponds to agreeing or strongly agreeing that:

- I trust my dad.
- My dad can tell when I'm upset about something.
- My dad respects who I am.

This was more often used as a binary variable identifying the 133 (33%) who did not report having a positive dad (scale score mean of 4.82, s.d. of 1.89) versus the rest (mean of 8.74, s.d. of 0.99).

Positive about mother

(α = 0.80) Item–scale correlations between 0.47 and 0.62

A high score corresponds to agreeing or strongly agreeing that:

- I trust my mum.
- My mum can tell when I'm upset about something.
- I get help if I need help.
- The expectations are fair.
- I can talk about my hopes and plans for the future.
- My mum respects who I am.

This was more often used as a binary variable identifying the 124 (31%) who did not report having a positive mum (scale score mean of 6.41, s.d. of 1.32) versus the rest (mean of 9.14, s.d. of 0.70).

Overall satisfaction with course

(α = 0.75) Item–scale correlations between 0.33 and 0.56

A high score corresponds to agreeing or strongly *dis*agreeing that:

- I enjoy the course content.
- I am satisfied with the quality of the course.
- I feel part of a group of students and staff committed to learning.
- I know what is expected of me.
- I get along with the people I study with.
- I contribute to course/class discussion.
- I am doing well.
- Overall, I am happy with my course.

Age 16 and age-14 variables

2. Competency measures

These are described fully in earlier reports (eg, Wylie & Hodgen, 2007). The measures used in the early years (ages 5–14) were derived very similarly, and are discussed generically here; at age 16 we revised some of the measures to better capture the young people's interests, expected competencies for successful learning at secondary level and abilities.

Cognitive competencies

The competencies measured in each round of data collection were:

- age 5: early literacy and numeracy and logical problem solving (using the Coloured Progressive Matrices test)
- age 6: mathematics, literacy (BURT Word Reading Test and an invented spelling test), and logical problem solving using the Coloured Progressive Matrices test)
- ages 8–12: mathematics (based on an adapted version of the PAT: Mathematics test), reading comprehension (based on the PAT: Reading Comprehension test), BURT Word Reading Test, a writing test and logical problem solving (using Raven's Standard Progressive Matrices)
- age 14: mathematics (based on an adapted version of the PAT: Mathematics test), reading comprehension (based on the PAT: Reading Comprehension test), a writing test and logical problem solving (using Raven's Standard Progressive Matrices)
- age 16: literacy and numeracy tests, based on the IALS tests and logical problem solving (using Raven's Standard Progressive Matrices).

At each round of data collection, we used the separate scores to construct an overall cognitive competency measure (a mean score), sometimes referred to as the cognitive composite score. This overall score is the one we have used most in the age-20 analyses.

Social and attitudinal competencies

At ages 5 to 14 the competencies measured were:

- curiosity
- perseverance
- independence
- self-management (age 14 only)
- self-efficacy (age 14 only)
- social skills with peers
- social skills with adults/teachers
- communication.

These measures were based on questions we asked the teachers about each child. Once the young people were in secondary school, and so had more teachers, the competency measures were based on the responses from up to three of their teachers (the mean of the separate measures).

Slightly different measures were used at age 16, or rather, new items were added to the old, and how the competency measures were constructed had to be changed.

Using teacher-derived measures means that we have no attitudinal competency measures for the young people who had left school, or were studying through The Correspondence School, when they were aged 16.

The types of questions used to derive each measure are given below. At each round of data collection, we also constructed a composite social/attitudinal competency measure by taking the mean of the separate competencies, and it is this composite measure that has most often been used in the age-20 analysis.

Curiosity (ages 5–14)

- Is curious/asks a lot of questions [/takes things apart to see how they work (ages 5 and 6)/takes an active interest in surroundings (ages 8–12)].
- Explores and/or asks a lot of questions about how people, animals and plants grow and change (ages 5 and 6)/wants to know how and why (ages 8–12).
- Takes an active interest in the world beyond themselves (age 14).
- Likes to work with things that fit together, such as mathematical games or jigsaw puzzles (ages 5 and 6)/likes to put things together/take them apart (ages 8–10).
- Gets excited about (age 5 and 6)/enjoys (ages 8–14) new experiences.
- Thinks laterally, “outside the square” [of new ways to solve problems] (ages 12–14).

Perseverance (ages 5–14)

- When they have a problem with a puzzle or some other educational game or resource that fits together they keep on trying until they get it together (ages 5 and 6).
- If they are doing something [creative], they persist with solving a problem, even when things go wrong for a while (all ages).
- Has good concentration span when working in the classroom with things that interest them (all ages).
- Makes an effort to do something, even if they don't feel confident about it (ages 5–12).
- Finishes all work (ages 8–10).
- Finishes all class-work (age 14).
- Finishes all homework (age 14).
- Makes an effort to do something even if they don't want to (age 12).
- Meets any goals that they set themselves (age 14).
- Meets any promises they make (age 14).

Independence (ages 5 and 6)

- Generally shows independence with going to the toilet, keeping track of their things and so on.
- Clearly conveys their needs and feelings.
- Follows your class routines without having to be reminded.

Individual responsibility (ages 8–12)

- Keeps track of time, puts books away in right place.
- Clearly conveys own needs and feelings (ages 8–10).
- [Never] acts without thinking of consequences.
- Follows class routines without having to be reminded.
- Gets on with work without distraction (ages 8–10).
- Can be relied on to pass messages between school and home (ages 12–14).
- Takes responsibility for their actions (ages 12–14).

Self-management (age 14)

- Checks their work before completing it or handing it in.
- Follows all class routines and rules without reminders.
- Turns up to class on time.
- Brings all the equipment they need to class.
- Takes responsibility for their actions.
- [Never] acts without thinking of the consequences.

Self-efficacy (age 14)

- Takes an optimistic view of life.
- Is willing to learn from mistakes.
- Carries out any leadership role they are given.
- Sees other students' point of view.

Social skills with peers (ages 5–14)

- When playing with other children, takes turns and shares, understanding rules and fair play (ages 5 and 6).
- Plays (ages 5 and 6)/works (ages 8–12) co-operatively with other children for extended periods without requiring adult intervention.
- Can put themselves in other children's shoes—see another child's point of view (ages 5 and 6).
- [Never] loses temper with other children (ages 8–10).
- Good at making and keeping friendships (ages 8–12).
- [Never] led astray by peer pressure/influenced to do something out of character (ages 8–14).
- [Never] left out of games (ages 8–10).
- [Never] left out of groups by other students (age 12).
- Most students [do not] find him/her difficult to get on with (age 12).
- Gets on well with other students (age 14).
- [Never] gets bullied by other students (age 14).
- Bullies other students (age 14).
- Is good at resolving disputes or keeping things smooth with peers (age 14).
- Helps/supports other students in class (age 14).
- Mixes with antisocial students (age 14).

Social skills with adults (ages 5–14)

- Holds conversations confidently with adults, including expressing their own points of view (ages 5 and 6).
- Accepts adult explanations about acceptable behaviour (ages 5 and 6).
- Asks for help and/or information when they need it (all ages).
- Confident interactions with adults in the school (ages 8–14).
- Shows respect for teachers/adults in the school (ages 8–14).
- Can present own point of view to teacher in appropriate manner, even if there's disagreement (ages 8–14).

Communication (ages 5–14)

- Remembers and carries out a simple instruction after hearing it only once (all ages).
- Asks for something not understood to be repeated or explained again (all ages).

- Follows what is being talked about in a conversation, and stays on the same topic (all ages).
- Usually understands the stories [or information] read to the class (ages 5–12).
- Can be relied on to pass simple messages from one person to another without getting the message mixed up (ages 5 and 6).
- Passes on messages accurately (ages 8–10).
- Speech easily understood, even by people who haven't met them before/strangers (ages 5–10).
- Varies their speech to help get their ideas across (ages 5–10).
- Experiments with language (ages 5–10).
- Clearly explains about things they have seen or done, so that you get a very good idea of what happened (ages 5 and 6).
- Gives clear explanations or descriptions (ages 8–10, 14).
- Expresses his/her views and needs appropriately (ages 12–14).
- Is a confident speaker (age 12).
- Modifies language according to situation and audience (ages 12–14).
- Provides clear and convincing argument (age 12).
- Is a good listener (age 14).

Thinking and learning (age 16)

- Takes on new ideas.
- Expresses views and needs appropriately.
- Learns from teacher's feedback.
- Asks for advice or help when needed.
- Asks questions so they understand.
- Enjoys new experiences or challenges.
- Clearly explains things so you get a very good idea of what is happening and what they are thinking.
- Takes full part in a group that is working to complete a learning task together.
- Can reflect on how they have learnt about something (the methods used).
- Aware that there are different ways of interpreting knowledge.
- Thinks "outside the square"; thinks of new ways to do things or solve problems.

Focused and responsible (age 16)

- Follows all class routines and rules without reminders.
- Turns up to class on time.
- Brings all the equipment they need to class.
- Takes responsibility for their actions.

- [Never] acts without thinking of the consequences.
- Follows what is being talked about in a conversation and stays on the same topic.
- Is a good listener.
- Finishes all class-work.
- Finishes all homework.
- Learns from mistakes/experience.
- Remembers and carries out instructions after hearing them once.
- Has good concentration when working.
- Meets any goals they set themselves.
- Persists with solving a problem even when things go wrong for a while.
- Assesses their work and makes improvements before completing it or handing it in.
- When there is a choice of work, chooses work that allows them to gain further knowledge or skills.

Social skills (age 16)

- Respects other points of view or different ways of doing things.
- Presents their point of view in an appropriate manner even when there's a disagreement.
- Good at resolving disputes or keeping things smooth with peers.
- Helps/supports other students in the class.

Social difficulties (age 16)

- Mixes with students who are antisocial or get into trouble.
- Is influenced by peer pressure to do something out of character.
- Hassles/bullies other students.
- Gets hassled/bullied by other students.

3. Scale variables

These variables were constructed from:

- Student responses to the stem:
  - School is a place where …
  - English/favourite subject/least favourite subject is a class where …
  - I feel I'm doing well at school when …
  - When I'm at home …
- In the past year I've had happen to me …
  - My friends are …

- Parent responses to the stem:
  - Relationships at home
  - Student's way of doing things (at home)
- Teacher responses to the stem: Characteristics that describe the student in your class … were used to construct the attitudinal competencies described in the first report of the Competent Children, Competent Learners study at 14 (Wylie, Ferral, Hodgen, & Thompson, 2006). In the lists that follow, an (r) indicates that the scale of the item was reversed before being used to form the scale variable.

School is a place where …

Engaged in school

A high score corresponds to positive (good) engagement in school.

Age 16	**Age 14**
(α = 0.79) Item–scale correlations between 0.41 and 0.61; *n* = 416	**(α = 0.79) *n* = 447**
• I like my teachers	• The discipline rules are fair
• I keep out of trouble	• I keep out of trouble
• I enjoy learning	• I like my teachers
• I want to leave school as soon as I can (r)	• I enjoy learning
• I get bored (r)	• I get tired of trying (r)
• I get tired of trying (r)	• I get too much work to do (r)
• I skip classes (r)	• I skip classes (r)
• I feel restless (r)	• I want to leave as soon as I can (r)

Affirmed at school /confidence in learning

A high score corresponds to being affirmed.

Age 16	Age 14
(α = 0.80) Item–scale correlations between 0.32 and 0.55; *n* = 416	**(α = 0.73) *n* = 447**
• I feel I belong	• I am treated like an individual
• I am treated like an individual	• I feel I belong
• Students have a say in how our school runs	• I feel safe
• I am treated like an adult	• I get all the help I need
• The discipline and rules are fair	• I learn most things pretty quickly
• I feel safe	• It's important to do my best
• Teachers ask for our views about how to make the school and our class better	• I am treated like an adult
• I learn most things pretty quickly	• I have good friends
• I can take leadership roles if I want to	
• It's important to do my best	
• I get all the help I need	

Satisfied with subject mix

A high score corresponds to satisfaction with the subjects taken.

Age 16	Age 14
(α = 0.70) Item–scale correlations between 0.46 and 0.56; n = 420	**(α = 0.80) n = 447**
• I am happy with my subjects this year • My parent/s are happy with my subjects this year • The subjects I am doing will help me do the subjects I want to do next year	• I am happy with my subjects this year • My parent/s are happy with my subjects this year • The subjects I am doing will help me do the subjects I want to do next year

I feel I'm doing well at school when …

A high score on both scales corresponds to using internal/external markers of success.

Student uses internal markers of achievement

Age 16	Age 14
(α = 0.86) Item–scale correlations between 0.55 and 0.70; *n* = 420	**(α = 0.86) *n* = 447**
• I do my very best • I learn something interesting • I solve a problem by working hard • I work really hard • I get a new idea about how things work • Something I learn makes me think about things • What I learn really makes sense • I catch on quickly	• I solve a problem by working hard • I learn something interesting • I do my very best • I get a new idea about how things work • Something I learn makes me think about things • I work really hard • What I learn really makes sense • I catch on quickly

English/specified subject is a class where …

Positive learning environment in English/favourite subject/least favourite subject

Age 16 (*n* = 420)	Age 14 (*n* = 446)
Teacher only	
• My teacher treats me fairly • I can count on the teacher for help when I need it • The teacher really understands how I feel about things • I like the teacher • I understand my teacher's attitudes and rules	• I like the teacher • My teacher treats me fairly • The teacher really understands how I feel about things • I understand my teacher's attitudes and rules
Class only	
• My teacher is interested in my ideas • The teacher gives us clear expectations of what we are to do • My teacher gives clear instructions • My teacher knows about what interests us • My teacher keeps teaching till we understand • I gain knowledge that will be useful for my future • The teacher spends most of their time helping us to learn • We discuss different ways of looking at things/interpretations • The teacher gives useful feedback on my work that helps me see what I need to do next and how to do it • The teacher uses examples that are relevant to my experience • The teacher is happy to explain things more than once • I get to think about ideas and problems in new ways • I can make mistakes and learn from them without getting into trouble • I can try out new ideas/ways of doing things	• My teacher gives clear instructions • The teacher helps me do my best • I can count on the teacher for help when I need it • The teacher gives us clear expectations of what we are to do • My teacher knows about what interests us • My teacher is interested in my ideas • My teacher keeps teaching till we understand • The teacher gives useful feedback on my work • The teacher is happy to explain things more than once • The teacher uses examples that are relevant to my experience • I enjoy doing the homework I get

Subject	Cronbach's alpha	Range of correlations with scale
English		
Class	0.91	0.39–0.77
Teacher	0.88	0.60–0.78
Favourite subject		
Class	0.88	0.42–0.64
Teacher	0.84	0.61–0.69
Least favourite subject		
Class	0.90	0.33–0.76
Teacher	0.86	0.31–0.72
All subjects combined		
Class	0.89	0.21–0.54
Teacher	0.79	0.29–0.54

Absorbed in learning, combined from all three subjects

A high score corresponds to being absorbed in learning.

Age 16	Age 14
(α = 0.87) Item–scale correlations between 0.27 and 0.57; *n* = 420	**(α = 0.86) *n* = 447**
• When I'm doing something, I think about whether I understand what I'm doing • I organise my time so that I get things done • When I finish my work, I check and make changes if needed before handing it in • I meet any goals that I set myself • I like to reflect on how I've learnt something (the method I used) • I enjoy doing the homework I get	• I get totally absorbed in my work • Things I do outside school help my learning • When I finish my work, I check to make sure it is correct • Students work out problems together • When I'm writing something, I think about whether I understand what I'm doing • I can do the hardest work if I try • I can get help at home if I need to

Disengaged in learning, combined from all three subjects

A high score on this scale corresponds with the behaviours or activities taking place in class.

Age 16	Age 14
(α = 0.80) Item–scale correlations between 0.30 and 0.60; *n* = 420	**(α = 0.85) *n* = 447**
• I muck around • I can get away with not doing much work • The class gets interrupted (eg, by external events, messages) • I behave in a way which annoys the teacher • We keep doing the same things without learning anything new	• I behave in a way which annoys the teacher • I muck around • I can get away with not doing much work • We keep doing the same things without learning anything new • I don't like asking my teacher questions • We get too much homework

Disrupted learning environment, combined from all three subjects

A high score on this scale corresponds to the behaviours or activities taking place in class.

Age 16	Age 14
(α = 0.76) Item–scale correlations between 0.21 and 0.50; *n* = 420	**(α = 0.84) *n* = 447**
• The class gets interrupted (eg, by external events, messages) • Students don't listen to what the teacher says • The teacher spends most of the time telling us what to do • The teacher spends most of the time telling us how to behave • Other students are distracting	• Other students are distracting • The class gets interrupted • Students don't listen to what the teacher says

Attitude to work, combined from all three subjects

(α = 0.81) Item–scale correlations between 0.20 and 0.56

A high score corresponds to a positive attitude to work.

- I don't know how to do the work (r).
- I plan to drop the subject as soon as I can (r).
- I do well.
- I'm confident I can master the skills being taught.
- The NCEA credits are easy to get.
- I will get a lot of NCEA credits in this class.

Achievement and praise

A high score corresponds to a having an achievement or being praised.

Age 16	Age 14
(α = 0. 68) Item–scale correlations between 0.31 and 0.51; *n* = 444	**(α = 0.71) *n* = 447**
• Being praised for achievement • Getting selected for a team or event • Making a new friend • Being included in a group you really wanted to be in • Supporting a friend in trouble • Taking action about a situation that concerns you • Trying to fit everything into your time	• Being praised for your achievements in sport or cultural activity • Getting selected for a team or event • Being praised for achievements • Making a new friend • Being included in a group you really wanted to be in • Supporting a friend in trouble • Taking action about a situation that concerns you • Being praised for your achievements in a paid work situation

When I'm at home …

Family communicates well

A high score corresponds to a family with good communication.

Age 16	Age 14
(α = 0.73) Item–scale correlations between 0.32 and 0.54; *n* = 447	**(α = 0.80) *n* = 447**
• My Mum can tell when I'm upset about something • I tell my family my problems and troubles • My family checks that I've done my homework/what I need to do • My Dad can tell when I'm upset about something • I talk about what I'm reading • I can talk about my hopes and plans for the future • I do interesting things with my parents	• My Mum can tell when I'm upset about something • I tell my family my problems and troubles • My family checks that I've done my homework • My Dad can tell when I'm upset about something • I talk about what I'm reading • I can talk about my hopes and plans for the future • My family asks me about school • I do interesting things with my parents

Family pressure

A high score corresponds to a family where individuals feel pressure.

Age 16	Age 14
(α = 0.85) Item–scale correlations between 0.41 and 0.73; *n* = 447	**(α = 0.80) *n* = 447**
• My Mum is always trying to change me	• My Mum is always trying to change me
• My Dad is always trying to change me	• My Dad is always trying to change me
• Home is more friendly if I just do what my parents want	• Home is more friendly if I just do what my parents want
• My parents want to control whatever I do	• My parents want to control whatever I do
• My parents expect too much from me	• My parents expect too much from me
• My family worry too much about what I do with my friends	• My family worry too much about what I do with my friends
• My parents have their own problems so I don't bother them with mine	• My parents have their own problems so I don't bother them with mine
• I need more privacy	• I need more privacy

Inclusive family

A high score corresponds to a family that is inclusive.

Age 16	Age 14
(α = 0.85) Item–scale correlations between 0.50 and 0.67; *n* = 447	**(α = 0.80) *n* = 447**
• I get treated fairly	• I get treated fairly
• I am comfortable	• I am comfortable
• My family respects my feelings	• My family respects my feelings
• I get help if I need help	• I get help if I need help
• The expectations are fair	• The expectations are fair
• My family asks me about school/what I do	• Everyone is too busy to bother about me (r)
• Everyone is too busy to bother about me (r)	

Supportive family

A high score corresponds to a family that is supportive.

Age 16	Age 14
(α = 0.85) Item–scale correlations between 0.59 and 0.68; *n* = 447	**(α = 0.87) *n* = 447**
• I trust my Dad	• I trust my Dad
• My Dad is warm and loving towards me	• My Dad is warm and loving towards me
• I trust my Mum	• I trust my Mum
• My Mum is warm and loving towards me	• My Mum is warm and loving towards me
• I feel close to my family	• I feel close to my family
• My family really help and support each other	• My family really help and support each other

Parental view of student self-efficacy

(α = 0.82) Item–scale correlations between 0.40 and 0.61

- Takes responsibility for his/her actions.
- Meets any goals s/he sets her/himself.
- Shows respect for adults.
- Is a good listener.
- Takes optimistic view of life.
- Is willing to learn from his/her mistakes.
- Learns from feedback.
- Sees others' points of view.
- Is influenced by peer pressure to do something out of character (r).
- Acts without thinking of the consequences (r).

In the past year I've had happen to me …

Risky behaviour

A high score corresponds to having shown risky behaviour.

Age 16	**Age 14**
(α = 0.79) Item–scale correlations between 0.29 and 0.63; *n* = 444	**(α = 0.80) *n* = 447**
• Doing something you regretted when drunk	• Doing something you regretted when drunk
• Drinking alcohol	• Drinking alcohol
• Getting in trouble with the police	• Getting in trouble with the police
• Having sex	• Having sex
• Getting into a physical fight	• Getting into a physical fight
• Breaking up with a boyfriend/girlfriend	• Breaking up with a boyfriend/girlfriend
• Getting in trouble at school	• Getting in trouble at school
• Having to lie about something someone else did	• Having to lie about something someone else did
• Getting behind with school work	• Falling behind with school work

Rejection

A high score corresponds to having been hassled or rejected.

Age 16	Age 14
(α = 0. 74) Item–scale correlations between 0.33 and 0.54; *n* = 444	**(α = 0.75) *n* = 447**
• Feeling left out • Being pressured to do something you did not want to • Being hassled about your body size/shape • Being bullied/hassled at school • Hassling/bullying someone at school • Being hassled about your sexuality • Being hassled about your culture • Coping with body changes	• Feeling left out • Not having enough freedom • Losing control of your temper • Having nothing to do/being bored • Being pressured to do something you did not want to • Not having enough money • Losing a friend • Trying to fit everything into your time • Being hassled about your body size/shape • Fighting with others at home • Being bullied/hassled at school • Coping with body changes

Adverse events

(α = 0.58) Item–scale correlations between 0.24 and 0.47

A high score corresponds to having had one or more adverse events in the year.

- Having sex when you didn't want to.
- Death of a friend.
- Had an accident/been injured.
- Shifting to live with a different parent or family member/changing where you live.
- Family break-up.
- Health problem.

My friends are …

The students still at school were asked questions about their school friends, or friends at school, and the young people who had left school were asked more general questions about friendships. However, the items asked were sufficiently similar that the responses to the slightly different items could be combined into a single scale score.

Friends with risky behaviour

A high score corresponds to having friends with risky behaviour.

Age 16	Age 14
(α = 0.81) Item–scale correlations between 0.48 and 0.72; *n* = 447	**(α = 0.84) *n* = 446**
• My friends smoke cigarettes • My friends think it is okay to have unsafe sex • When my friends and I party we like to drink alcohol • My friends smoke marijuana • My friends do other drugs • My friends get into trouble at school	• My friends smoke cigarettes • My friends think it is okay to have sex before you are 16 • My friends like to party and drink alcohol • My friends wag school • My friends smoke marijuana • My friends get into trouble at school

Extending friendships

A high score corresponds to the existence of friendships with these attributes.

(α = 0.74) Item–scale correlations between 0.38 and 0.55

- My friends push me to do well.
- I like to get my friends' point of view on things I am concerned about.
- My friends talk about hopes and plans for the future.
- My friends have introduced me to interesting activities that I would not have known about otherwise.
- My friends listen to what I have to say.
- My friends enjoy learning new things [at school].
- My parents like my friends.

Student's way of doing things (at home)

High scores on these scales correspond to the young person having the attributes.

Parent–child friction at age 14

(α = 0.73)

- Home would be a friendlier place if the student would do as s/he was told.
- I worry that their friends have too much freedom.
- There are things about the student I am really trying hard to change.
- Privacy is a source of friction between the student and other family members.
- There is a lot of friction in our home.
- I trust the student to behave appropriately when in the company of his/her friends (r).
- I generally like their friends (r).
- I see the student's friends as a positive influence on him/her (r).

Teacher view of student approach to NCEA assessment

(α = 0.92, 0.92, 0.93 for English, favourite and least favourite subjects, respectively) Item–scale correlations between 0.19 and 0.85

- S/he does the bare minimum to get the credits (r).
- S/he is not interested in the work if there are no credits to be gained (r).
- S/he works hard regardless of whether a topic is assessed or not.
- S/he is organised and well prepared for assessments.
- S/he can cope with pressure of internal assessments.
- S/he uses time well in assessment tasks.
- S/he always strives for excellence.
- S/he always tries to learn from my feedback on trial assessments.
- S/he typically questions judgements and grades awarded.
- S/he is realistic about likely achievement in assessment tasks.
- S/he makes impulsive decisions to not do assessments (r).
- S/he makes strategic decisions to not do assessments (r).
- S/he is able to cope with pressure of external assessments.

The three NCEA measures from the three teachers were moderately correlated (0.50 and 0.56 between most and least enjoyed subject teachers and English teachers, respectively, and 0.51 between most enjoyed subject teachers and English teachers). The pattern of moderate levels of agreement between teachers was noticeable for the other scales, too. The most strongly correlated were the *focused and responsible* subscales (correlations between 0.53 and 0.56),

followed by *thinking and learning* (between 0.39 and 0.45), *NCEA assessment*, then *social difficulties* (between 0.29 and 0.42) and *social skills* (between 0.29 and 0.33).

4. Cluster variables

These variables were constructed from a range of multiple response questions (and occasionally other variables, sometimes dichotomised or converted into a series of binary variables):

- leisure interests listed by parents when the students were 14.
- leisure interests mentioned by students at age 14.
- family income, and the proportion of income spent on housing, the family's ability to pay bills each month and how much money is left after paying the bills each month at age 14.
- the things that are most important to the student, both now (at 16) and when they are an adult.
- student subject choices (for those still at school).

The clusters described here are those that proved to define groups with clear mean differences in competency scores and/or scale scores.

Cluster membership cannot be entirely clear, or unambiguous. However, it seems that the clusters have allowed us to define subgroups within the sample who respond differently on a variety of measurements.

Student values

Student values at age 16

The students were asked to indicate the three things that are most important to them now, and the thing(s) that they think will be most important to them as adults. A cluster analysis yielded three clusters:

- Having a satisfying life (wanting to be helpful or kind, have a good sense of humour, enjoy the things they do, have a happy family life, have an interesting job, being creative).
- Standing out (wanting to look good/cool, have money and friends, have an important job and do well at sport).
- Aspirational (wanting to be with family/whānau/fanau, do well at school and sport, get a good education, have an important job, influence other people and have good health).

The full list of options from which they could choose was:

Current values	**Future adult values**
• wearing the right clothes/looking cool	• good looks
• being good looking	• happy family life
• having money to spend	• lots of money
• being helpful or kind	• lots of friends
• having the latest things	• an interesting job
• being with family/whānau/fanau	• a good education
• having a good sense of humour	• an important job
• doing well at school	• influencing other people
• doing well at sport	• being creative/making something new
• doing well at an interest outside school	• taking part in church/spiritual activities
• going to church	• good health
• having lots of friends	
• enjoying the things I do	

Student values at age 14

The students were asked to indicate the three things that are currently most important to them, and the thing(s) that they think will be most important to them as adults. A cluster analysis yielded three clusters:

- Anchored/achieving.
- Anchored.
- Standing out.

A full list of options is:

Current values	Future adult values
• wearing the right clothes/looking cool	• good looks
• being good looking	• happy family life
• having money to spend	• lots of money
• being helpful or kind	• lots of friends
• having the latest things	• an interesting job
• being with family/whānau/fanau	• a good education
• having a good sense of humour	• an important job
• doing well at school	• influencing other people
• doing well at sport	• being creative/making something new
• doing well at an interest outside school	• taking part in church/spiritual activities
• going to church	• good health
• having lots of friends	
• enjoying the things I do	

Motivation

In these reports, "motivation" refers to the perceived value of education, and long-term ambition of the student and for the student by their parent. This is clear from the items used to construct the clusters. The clusters formed at age 14 were used again at age 16, as they were useful indicators of the value placed on education early in secondary education.

Motivation

The three clusters used were named:

- University/professional orientation; high faith in gains from school.
- Less positive of gains from school and less sure of future goals.
- Aiming for skilled/unskilled jobs; low conviction about gains from school.

The items listed below were all either binary responses or responses on a Likert-type scale that were converted to binary variables:

Some of the things the students enjoy about the school are	**The student thinks that they will have a career that is**
• good teachers • independence/treated as an individual/adult • facilities • extracurricular activities	• professional • skilled • unskilled/unknown
As an adult the student thinks that the most important things will be	**The student thinks that when they leave school they**
• happy family life • lots of money • lots of friends • an interesting job • a good education • an important job • doing well at sports • influencing other people • being creative/making something new • taking part in church/spiritual activities • good health	• will study further • will travel • will get a job • have no idea what they will do
The parent's hopes for the student's future education are	**The parent thinks that the student will have a career that is**
• as far as they want to/are able to go • university • other tertiary • end of secondary	• professional • skilled • unskilled/unknown as yet
The student aims to leave school	**The parent perceives that an expectation that the student would do well at school is**
• at the end of Year 12 • at the end of Year 13 • unsure	• like us [their family] • not like us
The student gains knowledge useful for their future in English/mathematics/science (entered as separate variables)	
• agree • neutral/disagree	

Student interests

The students were asked to rate how often they were involved in various leisure activities on a scale of often/most days, once or twice a week, less than once a week and never. A comparison between the age-14 and age-16 clusters indicated that the age-14 clusters showed greater association with the age-16 competencies, so we have used these clusters at age 16, too.

Student interests

The four clusters were:

- Sports player.
- Computer games player, or else no strong interests.
- Reading, arts and sport.
- Creative interests.

The full list of options is:

- watch television
- read
- use a computer
- play computer/video games etc.
- hang out with friends
- do homework
- play sport for fun
- go to art/music/dance classes
- do exercise/physical training
- play competitive sport
- make things—a hobby or craft
- practise singing or playing a musical instrument
- cultural activities (eg, kapa haka).

Student subject choices

Separate cluster analyses were run on student subject choices for the Year 11 and Year 12 students. In both instances, four similar clusters were found to be most appropriate.

Subject clusters

- Traditional academic: arts orientation. These students were more likely to take achievement standards (AS) in maths, visual art, music, economics, accountancy, graphics, one or more languages, geography, history, design or fabric technology, the English unit standard (US) that requires reading a range of texts, and at Level 2 more creative options among the English AS, photography.

- Traditional academic: science orientation. These students were more likely to take AS in maths (including standards in geometry), physical education, economics, science subjects (science in Year 11, and biology, chemistry, physics, etc. in Year 12), geography.
- Contextually-focused options. These students were more likely to take food technology, outdoor/sport options, physical education, visual art, fabric or other soft technology options, geography, computer-oriented options, text information management, a mix of US and AS in maths, life skills, hospitality or tourism.
- Vocational orientation. These students were more likely to take food technology, physical education, dance and/or drama, music, one or more of the hard technology options, text information management, life skills US, hospitality or tourism, US in maths and English, science (US at Level 2), business studies, other technology options.

Parental interests

Parents were asked to rate how often they were involved in various leisure activities on a scale of often/most days, once or twice a week, less than once a week and never. We have used the responses given when the young people were 14, and the clusters developed in that round of data analysis. These responses yielded four clusters:

- Those who read widely (books and newspapers, typically often), and reported community involvement.
- Those who prefer to watch television and have low involvement in the community.
- Those with mixed interests (may read, but not books, nor newspapers regularly).
- Those who prefer to watch television and have few interests.

The list of possible interests was:

- watch television
- read a book
- read a magazine
- read a newspaper
- use the Internet
- play computer/video games
- talk with friends
- do home decorating/maintenance
- garden
- play sport/exercise
- go to art/music/dance activities
- write a letter/email
- do voluntary work
- make things—a hobby or craft
- go shopping
- go to a meeting for school/church/voluntary organisation
- study.

5. History variables

In the last several phases of the study we have developed history variables, based on responses to similar questions asked at ages 5 to 14. Some of these history variables cover only a subset of the years. For this report we reused the age-14 history variables, as the changes (or stability) reflected in these variables is unlikely to be modified much by the addition of an extra phase's data and the variables are not affected by nonresponse (particularly of parents, or of those no longer at school on questions about school).

History of TV watching (ages 8–14)

- Mainly low (up to two hours a day in at least three of the study phases).
- Mixed (everything else).
- Mainly high (over two hours a day in at least three of the phases).

History of school decile (ages 8–14)

- Mainly low decile (decile 1 or 2 school in at least three of the phases).
- Mainly mid-decile (decile 3–8 school in at least three of the phases).
- Mixed (everything else).
- Mainly high decile (decile 9 or 10 school in at least three of the phases).

History of family income (ages 8–14)

- Mainly low (under $30K in at least three of the phases).
- Mostly moderate ($30–$100K in at least three of the phases).
- Mixed (everything else).
- High at least once (over $100K in at least one of the phases).

History of involvement in bullying (ages 10–14)

- Never involved in bullying.
- Has been involved once (as either bully or victim).
- Has been involved at least twice (as either bully or victim).

History of enjoyment of reading (ages 8–14)

This variable is based on parental reports of the students' enjoyment of reading at ages 8 and 10, and the students' reports at ages 12 and 14.

- Always enjoyed reading.
- Everything else—mainly said yes or qualified yes.
- Said they did not enjoy reading at least twice.

6. Other derived variables

In this section we report on other derived variables that do not fit into any other category. These are attendance, current bullying and adverse events.

Family financial situation

Family financial situation

Ordinal-scaled variables used to form three clusters:

- Comfortable family financial situation.
- Moderate family financial situation.
- Difficult family financial situation.

The variables used were:

- Family income (if known).
- The approximate proportion of income that was spent on housing.
- The ability to pay all the family's bills each month (4-point scale from no difficulty to a great deal of difficulty).
- The amount of money left each month after paying bills (5-point scale from plenty to in debt).

Attendance

Attendance

At age 16 we asked the schools to rate the students' attendance on a 5-point scale (from excellent to multiple absences, seldom attends) with two other possible values to cover many absences due to illness, and other absences (the most common reason offered for these was to do with sport).

Factor and competency means

The measures for the factor or scale variables and competency measures all take values between 1 and 10. The scales were created so that they all have a similar "on a scale of 1 to 10, where would you put …" type of meaning. They are not in any way standardised, so a 6.2 on one scale is not directly comparable with a 6.2 on another. All we can say is that, in broad terms, both are relatively nearer the top end of the scale than the bottom.

The main reason we can't make direct comparisons is that the mean and standard deviation of the scales are not constant. The advantage of having variable scales, most of which were derived from Likert-type scaled items, is that the mean then gives an indication as to which behaviours or attributes were more common, and the standard deviation gives an indication as to which were more variable. The mean and standard deviation together can indicate severely skewed distributions, if the mean is closer to 1 or 10 than the middle, and the standard deviation is almost the same size as the mean (if the mean is nearer 1) or to the difference between 10 and the mean (if the mean is near 10). In a skew distribution, most of the measures are very low (or high), and only a few are at the other extreme. For example, most students have a low score for social difficulties, but a few students have high scores. Typically, if the measure is more symmetrically distributed, the mean score will be closer to 5 and the standard deviation will be closer to 1; most students will have scores in the middle of the range, fewer will have high or low scores and the proportion scoring above the mean and that below the mean will be approximately equal.

At age 16, the number of students for which we had each of these measures is either:

- between 444 and 447 if all students were asked the questions that were used to make the measure
- about 440 if the parents provided the information used to make the measure
- between 416 and 421 if students still at school provided the information
- about 414 if teachers of students still at school provided the information.

Table 1: Average scores for factor/scale measures and competencies

Name	Mean (s.d.)	*n*	Name	Mean (s.d.)	*n*
Achievement and praise	5.8 (1.5)	444	NCEA approach	6.4 (1.5)	414
Adverse events	1.9 (1.0)	444	**Numeracy**	6.0 (1.5)	444
Affirmed at school	5.2 (1.0)	416	Overall ability/achievement	6.4 (2.0)	420
Attitude to work	6.5 (1.1)	420	Parental view of student responsibility	7.3 (1.3)	440
Attitudinal composite[a]	6.5 (1.4)	414	Parental view of student self-confidence	7.0 (1.3)	440
Cognitive composite[b]	6.1 (1.4)	447	Parental view of student self-efficacy	7.1 (1.2)	440
Disengaged in learning	4.4 (1.2)	420	Positive about class	6.7 (0.9)	420
Disrupted learning environment	5.2 (1.1)	420	Positive about teacher	6.9 (1.1)	420
Engaged in school	5.6 (1.1)	416	Positive learning environment[c]	6.8 (0.9)	420
External markers of achievement	5.9 (1.8)	420	Rejection	2.2 (1.1)	444
Family communicates well	6.6 (1.5)	447	Risky behaviour	3.6 (1.4)	444
Family pressure	4.4 (1.7)	447	Satisfied with subject mix	7.7 (1.4)	420
Focused and responsible	6.8 (1.6)	414	**Social difficulties**	2.3 (1.1)	414
Friends with risky behaviour	4.1 (1.8)	447	**Social skills**	6.3 (1.4)	414
Inclusive family	7.8 (1.3)	447	Solid friendships	8.4 (1.2)	447
Internal markers of achievement	7.6 (1.4)	420	Supportive family	8.0 (1.6)	447
Literacy	6.9 (1.5)	444	**Thinking and learning**	6.3 (1.5)	414
Logical problem solving	5.4 (1.8)	447			

[a] Mean of focused and responsible, thinking and learning, and social skills

[b] Mean of literacy, numeracy, and logical problem solving

[c] Mean of positive about teacher and positive about class

Competencies are shown in **bold** face.

References

Wylie, C., Ferral, H., Hodgen, E. & Thompson, J. (2006). *Competencies at age 14 and competency development for the Competent Children, Competent Learners study sample*. Wellington: Ministry of Education and New Zealand Council for Educational Research.

Wylie, C. & Hodgen, E. (2007). *Competent Learners@ 16: Competency levels and development over time*. Wellington: Ministry of Education.

Appendix C: Modelling outcomes—approach and results

Important outcome variables for the young people, either as they left school or in 2009 when aged 20, are modelled against explanatory variables used in previous rounds of data analysis, and against some age-20 variables.

Variables used

The outcome variables attempt to capture the young people's learning dispositions, how they feel about their current life and their immediate past, their world view, how they negotiated their way through tertiary study, their current activities, their employment history and what qualifications they had achieved by the time they left school.

The explanatory variables are, as in earlier rounds, demographic variables (gender, maternal qualifications, family income), earlier competency levels, type of subjects taken at school at age 16 and satisfaction with these subjects, risky behaviour, motivation, early engagement with reading, early levels of TV watching, attendance patterns at school (age 16), engagement with learning at 16, age at school leaving, their age-16 perceptions of their main options when they left school, current levels of depression and level of support provided by their family. Included in some of the models were data about their highest level of school qualifications, and whether they achieved NCEA Level 1 or UE literacy and numeracy, what they did immediately after leaving school and whether they undertook industry or targeted training. Details of these variables are given in Appendix B.

Some of the variables were included in different forms in the different models. Those measured on 1–10 "scales" were sometimes used in that form, and sometimes the young people were categorised according to whether their score was below the first quartile; between the first quartile and the median; between the median and the upper quartile; or above the third (upper) quartile. These groups are referred to as "quartile groups". For some measures, where the extreme groups were of more interest than the middle groups, the middle two groups were combined (all those with values between the upper and lower quartiles). Which form was used depended on which was more appropriate, typically based on which explained more of the variability in the outcome variable, or on the nature of the relationship between the explanatory and outcome variables (usually, what was of interest was the degree of linearity).

Methodology

All the modelling was carried out using R (R Development Core Team, 2009).

The outcome variables were either binary (with two possible values) or ordinal or multinomial (with three or more possible values, typically indicating increasing amounts of what is being measured).

Logistic regression models

The binary outcomes were fitted using logistic regression models (using the function `lrm` in the `Design` library [Harrell, 2009]).

Goodness of fit of these models is reported using a pseudo-R^2 value (Cragg & Uhler, 1970; Nagelkerke, 1991), which takes values mainly between 0 and 1, with values closer to 1 indicating a better fitting model. Another measure used is the *c* index, which is a rank correlation between predicted probabilities of response and the actual (observed) response.

This measure is identical to the "receiver operating characteristic" or ROC curve, and has values between 0.5 and 1, with a value in the 0.5–0.6 range indicating a model with almost no predictive ability; 0.6–0.7 a model with poor predictive ability; 0.7–0.8 fair ability; 0.8–0.9 good ability; 0.9–1 excellent ability (over 0.8 is seen as desirable).

For these models we report:

- Parameter estimates and the associated standard errors.
- A *p*-value for the variable as a whole (all levels) entered in the tables against the reference category. This is the "as if fitted last" comparison using the Wald approximate chi-square test comparing a model including the variable (all levels of it) with one excluding it.
- Discrete variable: for other categories or levels, the approximate Wald *z*-test for the coefficient of that level compared to the reference level (this test is equivalent to the overall test if there are only two levels).
- Continuous variables: Wald tests of the coefficient (again, this is equivalent to the test for the variable as a whole as the chi-square test has a single degree of freedom).
- The odds ratios (note that these calculations were done using more than two significant digits, so checking results from the tables as printed will give slightly different results). To make interpretation of the odds ratios easier, all are presented as numbers greater than 1. Where the odds ratio was inverted (where the parameter estimate was negative) this is clearly indicated in the table, and this corresponds to the odds of having the reference level rather than the other level of the variable:
    - For discrete (categorical) explanatory variables, this is the relative risk for a level of the variable compared to the reference category. It is possible to compare other levels, but this needs some calculation. The odds ratios for all other statistically significant comparisons are presented in a separate table.
    - For continuous variables, for every unit increase (increase by 1) in the explanatory variable, the odds ratio increases by exp(estimate). This number alone is not easy to turn into something meaningful. One way around this is to talk about the change in odds ratio from the lower quartile (Q1) value of the variable to the upper quartile value (Q3).
- All possible comparisons between the levels of the discrete explanatory variables, and between the approximate upper and lower quartile values of the continuous explanatory variables, along with a 95% confidence interval for each (confidence intervals that are entirely above 1 indicate a likely "real" effect).
- To give a more dynamic picture of how the probability of achieving the outcome of interest changes with changing levels of the variables in the model, a small selection of the possible plots is presented.

Multinomial models

We reported multinomial models (rather than proportional odds models) as these models were applicable to all outcome variables with more than two levels. These models were fitted using multinom function in the nnet library (Venables & Ripley, 2002). Better goodness of fit statistics for multinomial models were obtained using the proportional odds model (fitted using lrm in the Design library). This model assumes ordinality in the levels of the outcome variable (or that each successive level represents "more", or "less", of the outcome variable), an assumption that is not always appropriate with our data. A rough comparison of the proportional odds model and the multinomial model (no assumption of ordinality) can be made by comparing both the residual deviance (twice the difference in the log-likelihood for a saturated model and the fitted model; the lower the value the better the model fits) and the AIC (Akaike information

criterion or -2 times the maximised log likelihood minus the number of parameters in the model; again, the lower the value, the better).

For these models we report (for each of the non-reference levels of the outcome variable):

- parameter estimates and the associated standard errors
- a *p*-value for:
    - discrete variable: for other categories or levels, the approximate Wald *z*-test for the coefficient of that level compared to the reference level (this test is equivalent to the overall test if there are only two levels)
    - continuous variables: Wald tests of the coefficient (again, this is equivalent to the test for the variable as a whole as the chi-square test has a single degree of freedom)
- the odds ratios (as for the logistic regression models)
- graphs illustrating changing probabilities of each of the possible outcomes for a range of levels of the explanatory variables.

Other considerations

Residual plots were used to check that the assumptions required for the tests were met.

Some of the confidence intervals quoted for odds ratios for the logistic regression models are very wide. This is to be expected when reporting the results from models with a log link function, such as logistic regression models. What happens is that the confidence interval is calculated in logits or the (natural) log of the odds ratio, but reported in back-transformed units (the anti-log or exponential), most easily illustrated by example:

exp(-10) = 0.000045; exp(-5) = 0.0067; exp(-1) = 0.37; exp(-0.2) = 0.819; exp(0) = 1; exp(0.5) = 1.65; exp(1) = 2.718; exp(2) = 7.39; exp(5) = 148.41; exp(10) = 22026.47.

As the values of the log-odds ratio (y) increase linearly (a unit at a time), exp(y) increases, well, exponentially, as exp(y) $\approx 2.718^{y}$. So the difference between the estimated odds ratio and the upper limit can be extremely large. A log-odds ratio of 5 with a confidence interval from 0 to 10 becomes an odds ratio of 148.41 with a confidence interval from 1 to 22,026.47.

Results

NCEA Level 1 literacy and numeracy

A relatively good fit was obtained using a model with four predictors: age-12 cognitive composite competency (on a 1–10 scale), age-16 school attendance, age-14 attitudinal composite competency (on a 1–10 scale) and the perceived importance of goals at age 20. Measures of the goodness of fit of the model were good, with a *c* index of 0.92 (well above 0.8, the recommended minimum for "good" fit), and pseudo-R^2—an indication of the proportion of the variance in outcomes accounted for—of 0.46 (n = 390).

Table 2: Achieving NCEA Level 1 literacy and numeracy: model

Variable		Estimate (S.E.)	*p*-value	Odds ratio
Intercept		-6.45(1.55)	< 0.0001	
Age-12 cognitive competency		0.53(0.24)	0.0254	1.70
Age-16 attendance:	No measure[a]	0	0.0001	
	Poor	1.25(0.67)	0.0625	3.50
	Fair	1.91(0.76)	0.0116	6.78
	OK or better	2.95(0.65)	< 0.0001	19.14
Age-14 attitudinal competency		0.49(0.21)	0.0174	1.63
Importance of goals:	Not important	0	0.0172	
	Important	1.42(0.66)	0.0317	4.13
	Very important	1.69(0.61)	0.0054	5.41

[a] Young people not at school or not in the study at age 16.

Table 2 gives contrasts between the reference category (with estimate or coefficients of 0), and each of the other categories for each variable. Table 3 gives the odds ratios and confidence intervals for *all* the statistically significant contrasts.

Table 3: Achieving NCEA Level 1 literacy and numeracy: odds ratios

Variable	Comparison	Odds ratio	Confidence interval	
Age-12 cognitive competency	Quartile 3 = 7 vs Quartile 1 = 5	2.89	1.14,	7.34
Age-14 attitudinal competency	Quartile 3 = 8 vs Quartile 1 = 6	2.66	1.19,	5.94
Age-16 attendance:	Poor vs No measure	3.50[a]	0.94,	13.08
	Fair vs No measure	6.78	1.53,	29.97
	OK or better vs No measure	19.14	5.34,	68.60
	OK or better vs Poor	5.47	1.23,	24.31
Importance of goals:	Important vs Not important	4.13	1.13,	15.06
	Very important vs Not important	5.41	1.65,	17.80

[a] Using the confidence interval, this contrast is not quite statistically significant, but the lower limit is very close to 1

Unpacking the table:

- Those with scores at about the third (upper) quartile (a value of 7 on the 10-point scale) of the age-12 cognitive competency were nearly three times as likely to gain NCEA Level 1 literacy and numeracy qualifications as those scoring at about the first quartile (a value of 5 on the 10-point scale).

- A similar result is true for the age-14 attitudinal competency.
- Those still at school or in the study at age 16 were much more likely than those not (this is, of course, fairly obvious) to gain NCEA Level 1 literacy and numeracy qualifications, no matter what their attendance was like: over three times if their attendance was poor; nearly seven times if it was fair; and 19 times as likely if it was OK or better.
- Those with OK or better attendance were over five times as likely to get the qualifications as those with poor attendance.
- Those seeing goals as important at 20 were much more likely to have gained NCEA Level 1 literacy and numeracy than those who did not: four times as likely if goals were important, and over five times as likely if they were very important.

In Figure 1 below, the three plots illustrate the modelled probability of achieving NCEA Level 1 literacy and numeracy qualification (on the vertical axis) for varying levels of the four explanatory variables. The plot on the left has low levels of both attendance and importance of goals, the middle plot has middle levels of both these variables and the plot on the right has high levels of each.

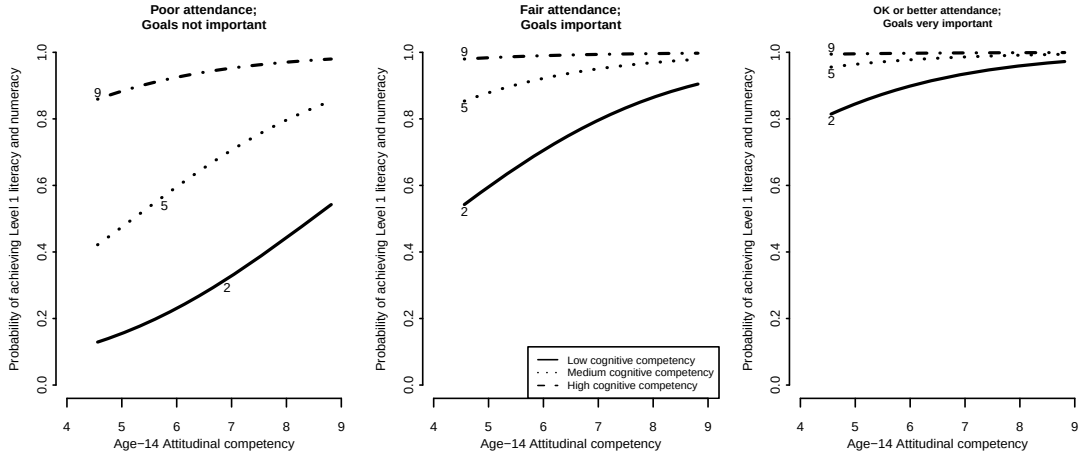
What is the same in each plot is that varying levels of age-14 attitudinal competency are on the horizontal axis, and the three lines illustrate how the probability changes for differing levels of age-14 attitudinal competency at different levels of age-12 cognitive competency (set, somewhat arbitrarily at 2, 5 and 9 on the 1–10 scale).

Of course, if the probability of achieving the qualification is 0.6, then the probability of *not* achieving the qualification is $1 – 0.6 = 0.4$.

Overall, 92% of the young people did achieve these qualifications, so it is no surprise that the model predicts that it is almost certain (p very close to 1) that young people who had reasonable attendance when they were 16, and would place high importance on goals would do so. Only those with the lowest level of cognitive competency, particularly when coupled with low levels of attitudinal competency, had about a 10 to 20% chance of not achieving the qualifications.

The differences between the levels of cognitive competency are more marked for young people with lower levels of attendance at school, and who placed lower importance on goals. However, for these young people it is still true that those with higher levels of cognitive competency are very likely to achieve the qualifications (their lowest probability is over 0.8, while the highest probability for those with low levels of cognitive competency is about 0.5), and that the likelihood increases with increasing levels of attitudinal competency.

Figure 1: Modelled probabilities of achieving NCEA Level 1 literacy and numeracy



Put extremely loosely, gaining NCEA Level 1 literacy and numeracy was almost assured for those with medium to high measures of attitudinal and cognitive competency, or who saw goals as very important and had good attendance at school (regardless of their level of cognitive competency) and less likely for those who had lower levels of cognitive and/or attitudinal competency, particularly if they did not see goals as important and had irregular school attendance at age 16.

University Entrance literacy and numeracy

While 92% of the young people achieved Level 1 literacy and numeracy, only 53% of them went on to achieve the UE equivalents. The same variables gave one of the best-fitting models, but the differences between those likely to achieve this qualification and those who are not are more marked.

The model fitted well, with a *c* index of 0.85 and pseudo-R^2 (variance of scores accounted for) of 0.46 (n = 390).

Table 4: Achieving UE literacy and numeracy: model

Variable		Estimate (S.E.)	*p*-value	Odds ratio
Intercept		-10.77(1.25)	< 0.0001	
Age-12 cognitive competency		0.59(0.12)	< 0.0001	1.81
Age-14 attitudinal competency		0.71(0.12)	< 0.0001	2.03
Age-16 attendance:	Not known	0	0.0002	
	Poor	0.88(0.61)	0.1541	2.40
	Fair	0.74(0.54)	0.1715	2.09
	OK or better	1.69(0.44)	0.0001	5.44
Importance of goals:	Not important	0	0.0179	
	Important	1.27(0.46)	0.0052	3.57
	Very important	1.08(0.43)	0.0118	2.94

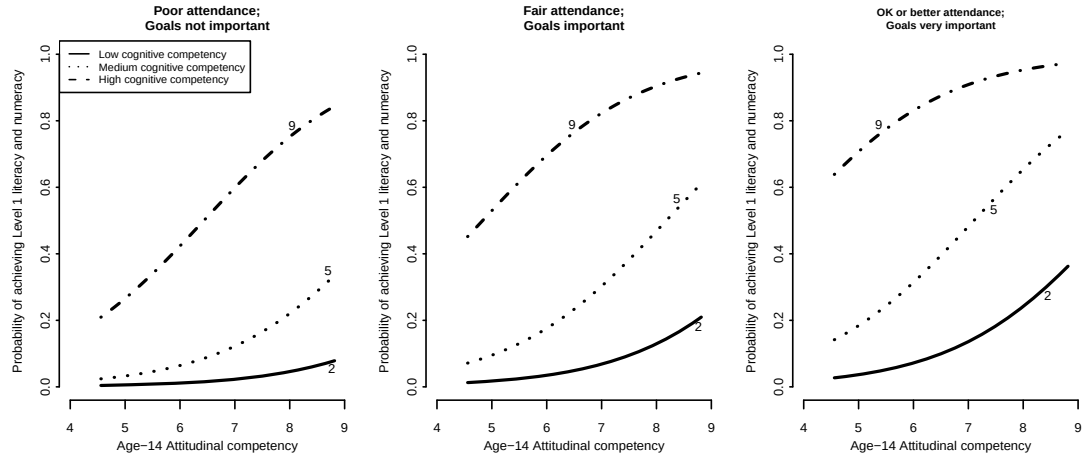
The statistically significant odds-ratio comparisons are given next.

Table 5: Achieving UE literacy and numeracy: odds ratios

Variable	Comparison	Odds ratio	Confidence interval
Age-12 cognitive competency	Q3 = 7 vs Q1 = 5	3.27	2.03, 5.28
Age-14 attitudinal competency	Q3 = 8 vs Q1 = 6	4.12	2.54, 6.70
Age-16 attendance:	OK or better vs Not known	5.45	2.31, 12.83
	OK or better vs Fair	2.60	1.22, 5.54
Importance of goals:	Important vs Not important	3.57	1.46, 8.71
	Very important vs Not important	2.94	1.27, 6.82

In Figure 2 the three plots illustrate the modelled probability of achieving UE literacy and numeracy (on the vertical axis) for varying levels of the four explanatory variables. The plot on the left has low levels of both attendance and importance of goals, the middle plot has middle levels of both these variables and the plot on the right has high levels of each. What is the same in each plot is that varying levels of age-14 attitudinal competency are on the horizontal axis, and the three lines illustrate how the probability changes for differing levels of age-14 attitudinal competency at different levels of age-12 cognitive competency (set, somewhat arbitrarily at 2, 5 and 9 on the 1–10 scale).

Figure 2: Varying probabilities of achieving UE literacy and numeracy



Gaining UE literacy and numeracy was almost assured for only those who had high levels of cognitive and attitudinal competency, as well as good school attendance and seeing goals as important, or very important. Gaining UE literacy and numeracy was extremely unlikely for those with low levels of cognitive competency, particularly if they also had low levels of attitudinal competency, did not see goals as important and did not attend school regularly. The best outcomes for those with low levels of cognitive competency (a probability of about a third) was where the young person had extremely high levels of attitudinal competency, saw goals as very important and attended school regularly.

Highest school qualifications

To fit this model taking all possible outcomes into account, we decided to restrict the model to those students who were still at school at age 16 (n = 357). Because only 12 of these young people failed to gain any qualifications at all, we modelled the three possible outcomes: No qualifications or NCEA Level 1 only (n = 54 or 15%); NCEA Level 2 only (n = 84 or 24%); NCEA Level 3 or equivalent (n = 219 or 61%).

With three outcome categories, we need to fit a multinomial model. Interpretation of these models is similar to that of binomial models, but a little more complex. This time we have *two* outcome categories to compare with the reference category, which was selected to be those with at most NCEA Level 1. The question being asked, then, is what types of previous experience or achievement have made the different levels of achievement more likely?

The proportional-odds model gave indications of a good fit, with a *c* index of 0.88 and pseudo-R^2 of 0.56 (n = 357). The deviance and AIC for the multinomial model were 415.1 and 459.1, respectively.

Explanatory variables tested in the model included earlier levels of cognitive and attitudinal competency, maternal qualifications, age-14 measures of family financial situation, risky behaviour, motivation, enjoyment of reading, number of schools attended, age-16 measures of risky behaviour, engagement in school and type of subject mix. These variables do overlap.

The variables that added significantly to the model were the level of cognitive and attitudinal achievement at 14, the types of subjects they took at 16, the number of schools they had attended by age 14, how regularly they were attending school at age 16 and their level of engagement in school at age 16. In Table 6 we report the coefficients (and standard errors) comparing achieving NCEA Level 2 with achieving no more than NCEA Level 1, and achieving NCEA Level 3 or an equivalent with achieving no more than NCEA Level 1, approximate *p*-values comparing the reference category with another and odds ratios for the same comparison.

Table 6: Achievement of NCEA levels: model

	NCEA Level 2			NCEA Level 3		
Variable	**Estimate (S.E.)**	***p*-value**	**Odds ratio**	**Estimate (S.E.)**	***p*-value**	**Odds ratio**
Intercept	-3.16(1.48)	0.0166		-11.2(1.82)	< 0.0001	
Age-14 cognitive competency	0.04(0.18)	0.4087	1.40	0.82(0.20)	< 0.0001	2.27
Age-14 attitudinal competency	0.32(0.20)	0.0577	1.37	0.47(0.22)	0.0172	1.60
Number of schools by age 14:	**Reference category: Up to 3 schools**					
4 schools	-0.19(0.56)	0.3676	1.21*	-1.16(0.63)	0.0327	3.19*
5 or more	-1.59(0.69)	0.0102	4.92*	-1.67(0.74)	0.0115	5.36*
Age-16 subject cluster:	**Reference category: Vocational orientation**					
Contextual orientation	0.32(0.51)	0.2701	1.37	1.46(0.68)	0.0155	4.29
Traditional orientation	1.72(0.52)	0.0004	5.60	3.23(0.62)	< 0.0001	25.29
Age-16 engagement in school:	**Reference category: Lowest quartile group**					
Second-lowest group	0.45(0.47)	0.1696	1.56	1.04(0.53)	0.0245	2.84
Second-highest group	1.32(0.77)	0.0429	3.76	2.43(0.81)	0.0014	11.13
Highest quartile group	0.86(0.82)	0.1471	2.36	2.31(0.87)	0.0038	10.09

* Odds ratio inverted to be the odds of, for example, getting no more than Level 1 rather than Level 2. Associated with *negative* estimates indicating a *decrease* in the probability of getting a qualification

Some of the significant differences are between the other (non-reference) levels of the explanatory variables. However, given the general complication of the model, it is perhaps easiest to see what all these differences mean in plots of the modelled probability of each possible outcome. In Figure 3, the horizontal axis shows the levels of age-14 cognitive competency on the 1–10 scale, and the vertical axis shows the probability of getting each of the three outcomes represented by the lines. These graphs differ from those shown previously as there are three (in this instance) possible outcomes, one of which *must* be true for any individual student. Therefore, if you draw a vertical line at any point on

any of the graphs, and read off the three probability values where the vertical line cuts the solid, dotted and dashed lines, the three probabilities will add up to one. This in turn means that as one of the probabilities increases, at least one of the other probabilities *must* decrease.

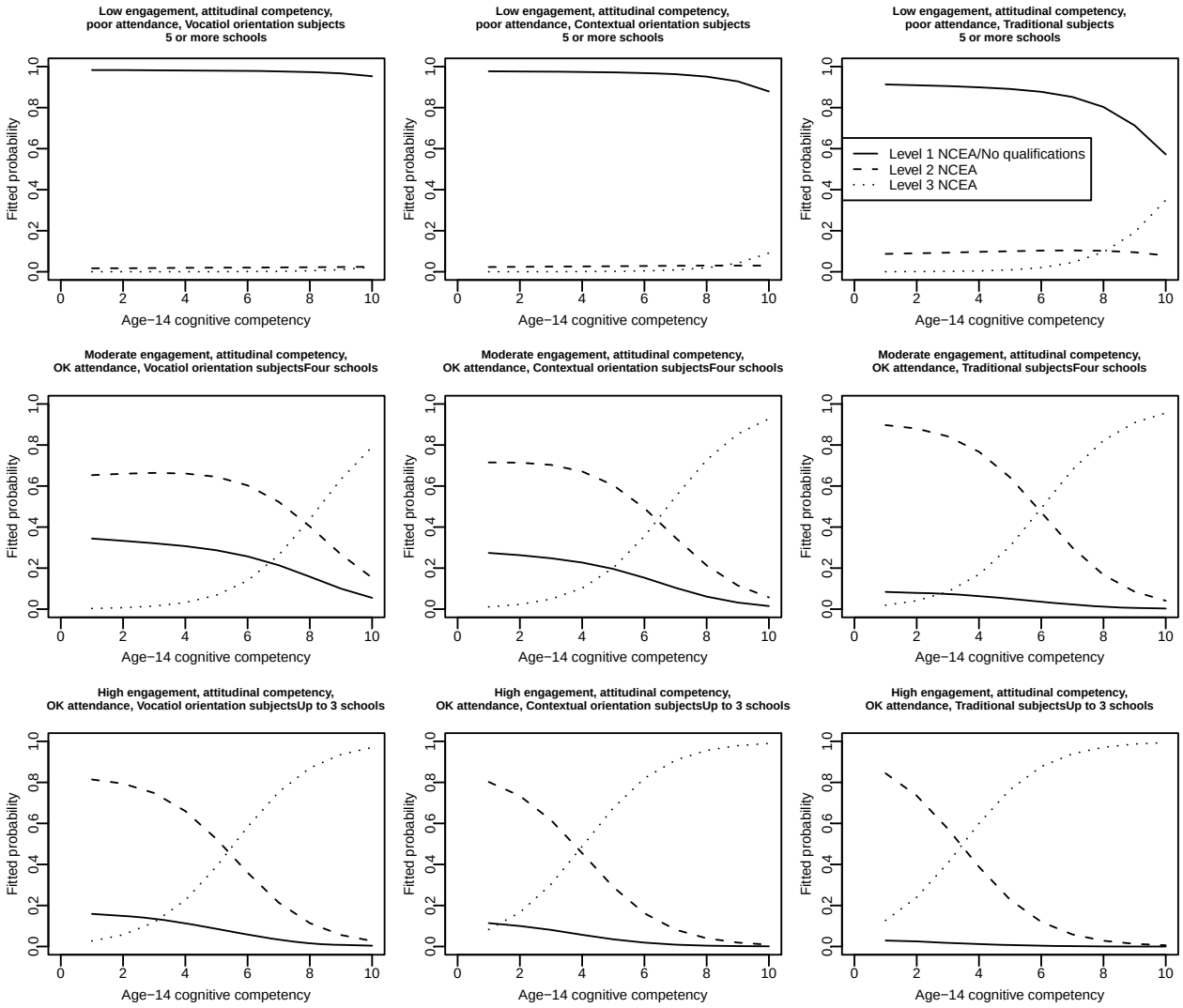
The upper three graphs represent the probabilities for students with relatively low levels of engagement, age-14 attitudinal competency and who attended five or more schools; the middle three graphs, those who had middle levels of these variables; and the bottom three graphs across the page represent those with the highest levels of these variables. The three graphs in a stack on the left of the plot represent students taking vocational orientation subjects; the three in the middle represent those taking contextual orientation subjects; and the three on the right represent those taking traditional subjects.

Looking first at the young people with low levels of engagement and attitudinal competency and who had attended five or more schools, the probability of getting no more than NCEA Level 1 was highest for those with erratic attendance at school (this was both an indicator of lack of engagement with study, as well as the consequent lack of opportunity to do the work required for success in NCEA), shown across the top row of graphs. The probability of achieving more than NCEA Level 1 only increased for high levels of age-14 cognitive ability in combination with taking a traditional range of subjects (graph in the top right-hand corner)—but even then, achieving no more than NCEA Level 1 was more likely.

The students with moderate levels of engagement and attitudinal competency who had attended four schools and had lower levels of cognitive competency were most likely to achieve NCEA Level 2—particularly if they were taking vocational or contextual mixes of subjects. Students with similar attitudes but with moderate to high levels of cognitive competency and who were taking a traditional mix of subjects were more likely to achieve NCEA Level 3. Achieving no more than NCEA Level 1 was still relatively likely for those with vocational or contextual mixes of subjects, particularly if they had low levels of cognitive competency.

The students with high levels of engagement and attitudinal competency were unlikely to achieve less than NCEA Level 2. Those who also had low to moderate levels of cognitive competency were more likely to achieve NCEA Level 2, particularly if they were taking vocational or contextual subject mixes, while those who also had high levels of cognitive competency were more likely to achieve NCEA Level 3 or equivalent.

Figure 3: Modelled probabilities of achieving no more than NCEA Level 1, Level 2 or Level 3 or equivalent



Accounting for differences in age-20 main activity

We fitted a multinomial model, which essentially asks the question: What types of previous experience or achievement have made not studying more likely? This model reduces the more complex picture we gain from using cross-tabulations to essentially the gate-keeping role of NCEA qualifications and UE literacy and numeracy, since most of those studying at age 20 were at university. However, it does show that thoughts of immediate post-school activity also play a part, over and above actual qualification levels.

The proportional-odds model[48] gave indications of a good fit, with a *c* index of 0.84 and pseudo-R^2 of 0.44 (n = 401). The deviance and AIC for this model were 513.3 and 533.3 which are of a similar order of size for those from the multinomial model of 506.8 and 542.8, respectively (we report the latter model).

The variables that contributed significantly to the model were whether the young person had UE literacy and numeracy (or not), what they perceived their main post-school options to be when they were 16 years old (note: to fit this model, the categories used were to work, study at university, undertake other study, take time out and a category for those who did not answer the question or who were not in the age-16 phase of the study), and what their highest school qualifications were. In Table 7 we report the estimates or coefficients (and standard errors) comparing working and not studying with studying, and neither working nor studying with studying, approximate *p*-values comparing the reference category with another and odds ratios for the same comparison.

Table 7: Multinomial model showing odds of being employed only, or neither studying nor employed cf. studying, at age 20

	Employment only			Neither studying nor employed		
Variable	**Estimate (S.E.)**	***p*-value**	**Odds ratio**	**Estimate (S.E.)**	***p*-value**	**Odds ratio**
Intercept	0.43(0.73)	0.2787		0.85(0.80)	0.1440	
UE literacy and numeracy was achieved	-1.36(0.33)	< 0.0001	3.88*	-1.52(0.74)	0.0194	4.57*
Age-16 main option: Reference category: No data[a]						
Work	0.74(0.70)	0.1440	2.10	-0.50(1.09)	0.3236	1.64*
University	-0.45(0.61)	0.2339	1.56*	-0.68(0.83)	0.2049	1.98*
Other study	0.48(0.65)	0.2289	1.62	0.36(0.83)	0.3333	1.43
Time out	0.18(0.69)	0.4002	1.19	0.04(0.86)	0.4793	1.05
School-level qualifications: Reference category: No qualifications						
NCEA Level 1	0.65(0.64)	0.1563	1.91	-0.68(0.69)	0.1627	1.97*
NCEA Level 2	-0.03(0.60)	0.4831	1.03*	-1.63(0.67)	0.0078	5.11*
NCEA Level 3	-1.18(0.62)	0.0287	3.25*	-3.55(0.90)	< 0.0001	34.72*

* Odds ratio inverted to be the odds of, for example, studying rather than working. Associated with *negative* estimates indicating a *decrease* in the probability of working (or neither working nor studying).

[a] Those not in the study at 16, or who did not answer the question.

Some of the significant differences are between the other (non-reference) levels of the explanatory variables; for example, for those in employment, between those who at 16 saw work as their main option and those who saw university as their main option. However, given the general complexity of the model, it is perhaps easiest to see what all these differences mean in plots of the modelled probability of each possible outcome. In Figure 4, the horizontal axis shows the four possible levels of school qualifications, and the vertical axis shows the probability of getting each of the three outcomes represented by the lines: studying at 20, working at 20, neither studying nor being employed at 20. In these graphs, there are three possible outcomes, one of which *must* be true for any individual. Therefore, if you draw a vertical line at any point on any of the graphs, and read off the three probability values where the vertical line cuts the

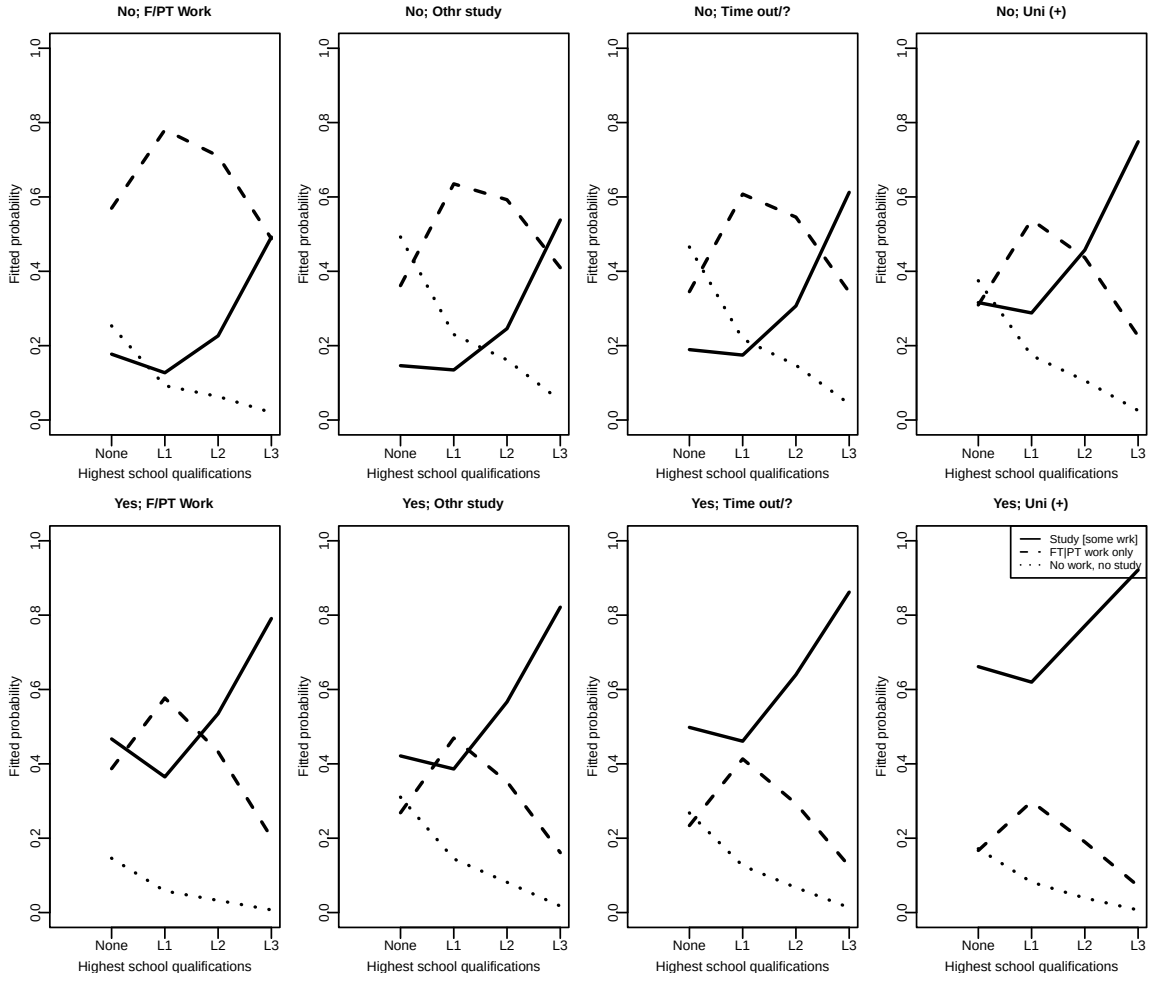
[48] The different functions used to fit the models provide different measures of goodness of fit. To give as much consistency between the logistic and multinomial models, some of the goodness of fit statistics for multinomial models are quoted from the slightly different proportional-odds models (models with many possible outcomes, but where there is *order* to the outcomes). However, so that only one type of model is reported where there are more than two outcome categories, the actual models *reported* are all multinomial, with no assumptions of ordinality, but goodness of fit statistics are provided for both multinomial and proportional-odds models, so that they match those for the logistic regression models. They are indicative of the goodness of fit for the actual model fitted.

solid, dotted and dashed lines, the three probabilities will add up to one. This in turn means that as one of the probabilities increases, at least one of the other probabilities *must* decrease.

The upper four graphs represent the probabilities for those who did *not* achieve the UE literacy and numeracy qualification ("No"); the lower four graphs those who did ("Yes"). The four graphs across the page separately represent those who at age 16 thought that once they left school they were most likely to work, to do non-university study, to have time out and to go to university.

The probability of studying was in all cases highest for those with NCEA Level 2 or Level 3 qualifications, and the highest by far for those who by 16 had thought they would study at university. The probability of neither studying nor working was in all instances highest for those with no school qualifications (who then also did not achieve UE literacy and numeracy qualifications although the model cannot tell that this is impossible as opposed to unlikely), particularly those who thought they may do non-university study or have time out. The probability of working (only) was in all instances highest for those who had NCEA Level 1 qualification (only—and hence no UE literacy and numeracy qualification), particularly if by age 16 they already saw work as their most likely post-school option.

Figure 4: Modelled probabilities of working (and not studying), neither working nor studying and studying (possibly combined with work)



The variables tested in the model included whether the young person had been unemployed, left a post-school course without completing it, what they had done since leaving school, whether they were happy with what they were doing in 2009, their highest school qualifications, whether they had major regrets about what they had done since leaving school, age-14 measures for curiosity and self-efficacy (both attitudinal competencies), and leisure interests, age-16 measures of experience of adverse events, extending friendships, getting praise and achievement, and positive family life, and age-20 measures of their experience of the transition from school, having a close, supportive family and the importance of goals.

The best-fitting model tested had a *c* index of 0.79 and pseudo-R^2 of 0.28 (n = 401) and included five explanatory variables.

Table 8: Optimism: model

Variable		Estimate (S.E.)	*p*-value	Odds ratio
Intercept		6.08(1.30)	< 0.0000	
Happy with current situation:	Neutral/not happy	0	0.0021	
	Happy	0.11(0.40)	0.7764	1.12
	Very happy	1.02(0.38)	0.0078	2.76
Major regrets at 20:	Has regrets	0	0.0038	
	No major regrets	1.05(0.36)	0.0038	2.86
Extending friendships at 16:	No measure[a]	0	0.0003	
	Lowest quartile group	1.08(1.09)	0.3210	2.95
	Middle groups	1.81(1.06)	0.0867	6.10
	Highest group	2.58(1.06)	0.015	13.19
Transition from school:	Hard/very hard	0	0.0145	
	Neutral	-0.27(0.55)	0.6218	1.31
	Easy	0.73(0.52)	0.1563	2.09
	Very easy	0.66(0.55)	0.2302	1.94
Importance of goals:	Neutral/not important	0	0.0001	
	Important	0.87(0.56)	0.1195	2.39
	Very important	1.82(0.52)	0.0005	6.15

* Odds ratio inverted to be the odds of *not* having hope for the future. Associated with *negative* estimates indicating a *decrease* in the probability of having hopes

[a] Those not in school or not in the study at 16

Interpreting the odds ratios is easier if odds ratios are greater than 1 (*x* is one-and-a-half times as likely if *y* is true is easier to interpret than *x* is a sixth as likely if *y* is true), so in Table 9 the reference categories have been selected so that the odds ratios are greater than 1.

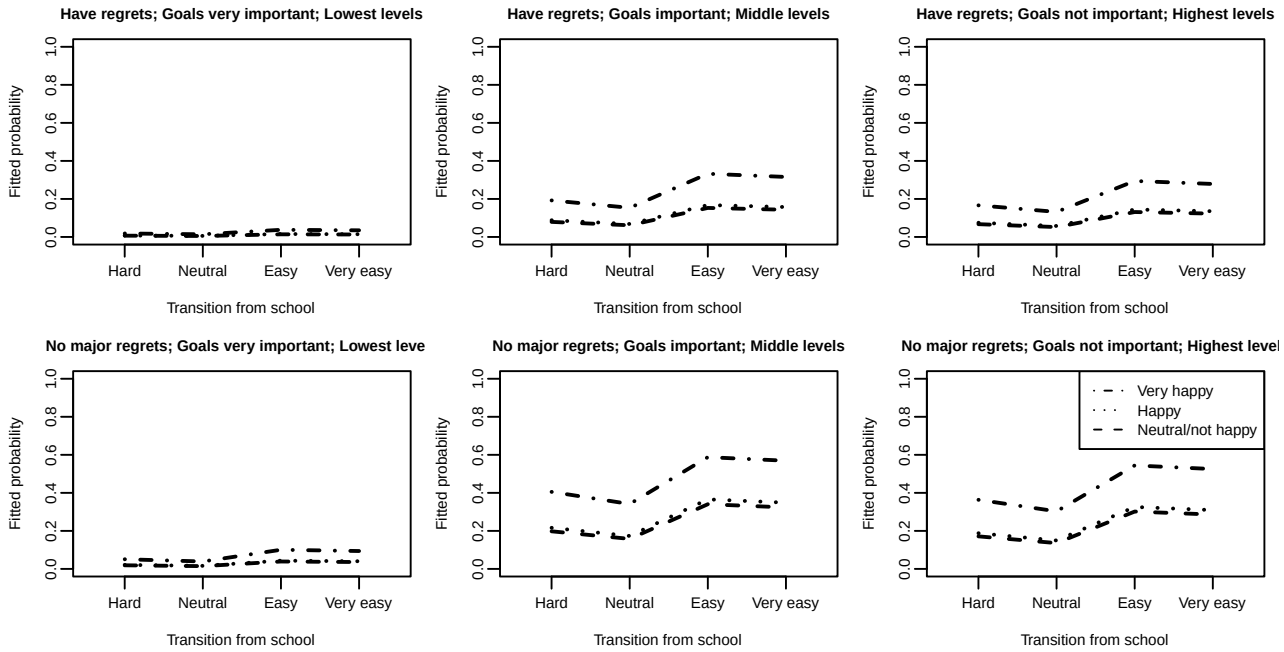
Table 9: Optimism: odds ratios

Variable	Comparison	Odds ratio	Confidence interval	
Happy with the current situation	Very happy vs Happy	2.47	1.38,	4.41
	Very happy vs Neutral/not happy	2.76	1.31,	5.84
Major regrets at 20	No major regrets vs Regrets	2.86	1.40,	5.84
Extending friendships at 16	No measure[a] vs Highest group	13.19	1.65,	105.52
	Lowest group vs Highest group	4.47	2.03,	9.84
	Middle groups vs Highest group	2.16	1.21,	3.86
Importance of goals	Not important vs Very important	6.15	2.21,	17.13
	Important vs Very important	2.58	1.41,	4.71
Transition out of school	Neutral vs Easy	2.75	1.41,	5.35
	Neutral vs Very easy	2.55	1.20,	5.39

[a] Those not in school or not in the study at 16

A visual representation of the probabilities is given in Figure 5. The modelled probabilities show some patterns of difference. On the whole the probability of having optimism is higher in the graphs in the second row; in other words, young people who did not have any major regrets. Those who found transition from school hard, or were neutral about this question, tended to have lower probabilities of having optimism; and those who found the transition very easy were generally more likely to have optimism. Those who saw goals as important or very important at age 20, and also had moderate to high levels of having extending friendships at age 16, were also more likely to have optimism.

Figure 5: Modelled probabilities of optimism



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