

## 7. Relationship between class, friends, and home

We now link what was happening at home, with their friends, and in their life in general with what happened in class according to the young people and their teachers. In this chapter we link the family, friends, and life variables described in the previous chapter with the descriptions given by the student of the class and their behaviour in it and the descriptions of the student given by the teacher (attitudinal competencies). In the next chapter, we look more specifically at engagement, as it appears to relate to what happens in class.

### Age-16 variables derived from the classroom environment

These variables are derived by aggregating the responses of three teachers (of English, and most and least enjoyed subject) when describing the student, or the responses of the student when describing the three classes. How the responses compare across the three subjects/teachers is discussed in more detail in the next chapter.

*Social skills* and *social difficulties* were modelled in *Family and friends*, as they are essentially social competencies. They are modelled again here, using a slightly different set of explanatory variables, as they are also reflections of how the young people are perceived by the teacher in the class environment.

### Outcome variables used

#### *Teacher descriptions of student*

A set of the teacher ratings of the students has been used to form the attitudinal competencies (see Hodgen, 2006):

- *thinking and learning*
- *focused and responsible*
- *social skills*
- *social difficulties*.

The three teachers were asked to rate the student's *overall ability* in relation to others of the same year level. The teachers were asked also their views on the student in relation to *NCEA assessment* (the quality and quantity of effort they put in, their level of organisation, time management, how they cope with pressure, and how they reach decisions about NCEA).

We have values of these variables for 414 of the young people.

#### *Student measures of success and attitudes to work*

Students were asked how they knew when they were doing well. Their responses can be grouped into *internal markers of achievement* and *external markers of achievement*.

The two measures that indicate something about the students' attitude to work are *absorbed in learning*, which is about taking responsibility for learning, and quality of work produced and *attitude to work*, which is about being confident in achievement, and having success in assessment.

We have values of these variables for 420 of the young people.

### *Student perceptions of class*

The students were asked about English, their most enjoyed, and least enjoyed class. The scales were created averaging the responses across the three classes for three reasons: it is easier to have a single scale than to have three separate scales; the combined scales perform at least as well as the separate scales, and often better; and there are fewer missing scale values (students who may have left out some items for one of the teachers/classes are likely to have answered the matching items for at least one of the other teachers/classes). These variables are about how the young people feel about and behave in their classes.

The *positive about teacher* and *class* scales ( $r = 0.84$ ) are about the student feeling good about the class and teacher, that the learning environment is a safe and stimulating one, and one where it is safe to explore new ideas and developing abilities; *disengaged in learning* is about behaving responsibly and co-operatively; *disrupted learning environment* is about not having an effective teacher, or a learning-friendly school environment.

We have values for these variables for 420 of the young people.

## Explanatory variables used

### *Continuous variables*

The age-16 family variables are:

- *inclusive family*
- *supportive family*
- *family communicates well*
- *family pressure*
- parent perception of young person's *self-confidence*
- parent perception of young person's *self-efficacy*
- parent perception of young person's *responsibility*.

The age-16 friends variables, which include some life variables, are:

- *rejection*
- *praise and achievement*
- *adverse events*
- *friends with risky behaviour*
- *solid friendships*
- *risky behaviour*
- *extending friendships*.

The class environment variables is:

- *relevant learning opportunities*.

In addition, where they are available, the corresponding age-14 class and teacher variables were used:

- *attitudinal composite*
- *cognitive composite*
- *comparative learning environment*
- *engaged at school*
- *disengaged in learning*

- *confident at school*
- *absorbed in learning*
- *internal markers of progress*
- *external markers of progress*
- *overall achievement*
- *positive about class*
- *positive about teachers.*

### *Demographic variables*

These are the “usual suspects” of gender, ethnicity, maternal qualifications, age-14 family income and financial situation, as well as school-level “demographics” of decile and gender mix.

### *Discrete variables*

These are a mix of one age-16 variable, and several age-14 variables that were created either as a result of a cluster analysis (e.g., motivation) or to capture a history of experiences (e.g., history of involvement in bullying, or enjoyment of reading). The age-14 variables are the same ones used in *Overview of the relationships between factor and cluster variables and school and social characteristics*.

For these models, two versions of *attendance* at age 16 were used: the full version, with seven possible levels, and one dichotomised into acceptable and poor, where acceptable includes all students other than those whose attendance was rated poor. For some outcome variables, there is a graduation of response (see, for example, *thinking and learning*), in which case the 7-point scale was used; for others, the only real contrast was between those with poor attendance and the rest, in which case the dichotomised scale was used.

## Model-fitting process

The models included four categories of variables: the age-16 family, friends, and life variables; demographic variables; a mix of discrete age-14 and age-16 variables likely to be associated with some of all of the outcome variables; and the age-14 composite cognitive and attitudinal competency measures and class and school engagement variables.

## Fitting the models

The models were fitted in the stages:

- basic model of age-16 family, friends, and life variables that had a correlation with the dependent variable of at least 0.2 in absolute value. All variables not statistically significant (at the 5 percent level) were dropped from the model
- demographic variables were tested to see if any added significantly to the model
- discrete variables were tested to see if any added significantly to the model (both the dichotomous and 7-level versions of attendance were tested; if both were significant, the one that accounted for more variability was included in the model)
- the age-14 class variables and age-16 family, friends, and life variables not in the model were tested to see if any added significantly to the model
- examination of variance inflation factors, given that several of the explanatory variables are quite strongly correlated, and where necessary variable/s were dropped from the model

- examination of residual plots: several of our young people have atypical lifestyles or experiences, and in several of the models a residual plot showed that between one and five of the observations were exerting too much influence on the model<sup>1</sup>, and typically it was the same individuals with high leverage across all models.

## Attitudinal competencies and other teacher perceptions

Following the same pattern as the previous chapters, we first look at all correlations, then at the models fitted.

### Interrelationships between the variables

The correlations between the explanatory variables have been described in *Family and friends*.

The correlations between the four attitudinal competencies and two teacher perceptions variables with the possible explanatory variables are given in Table 48.

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<sup>1</sup> "Influence", measured by leverage, and in the sense that the inclusion of the outlier(s) changed the parameter estimates in the model substantially, or even changed which variables added significantly to the model.

Table 48: Correlations between the teacher description of student variables and explanatory variables

	Thinking and learning responsible	Focused and responsible	Social skills	Social difficulties	Ability to cope with NCEA	Overall ability
Focused and responsible	<b>0.85</b>					
Social skills	<b>0.80</b>	<b>0.73</b>				
Social difficulties	<b>-0.48</b>	<b>-0.65</b>	<b>-0.52</b>			
Ability to cope with NCEA	<b>0.82</b>	<b>0.91</b>	<b>0.65</b>	<b>-0.58</b>		
Overall ability	<b>0.79</b>	<b>0.79</b>	<b>0.59</b>	<b>-0.45</b>	<b>0.79</b>	
Cognitive composite 14	<b>0.54*</b>	<b>0.53*</b>	<b>0.41*</b>	<b>-0.44*</b>	<b>0.50*</b>	0.34*
Attitudinal composite 14	<b>0.62*</b>	<b>0.65*</b>	<b>0.54*</b>	<b>-0.45*</b>	<b>0.62*</b>	<b>0.63*</b>
Relevant learning opportunities 16	–	–	–	–	–	–
Comparative learning environment 16	-0.19	-0.20	-0.23	0.20	-0.18	-0.13
Friends with risky behaviour 16	-0.31	<b>-0.45</b>	-0.23	0.29	<b>-0.44</b>	-0.32
Solid friendships 16	–	–	–	–	–	–
Extending friendships 16	0.16	0.10	0.18	-0.13	–	0.11
Inclusive family 16	0.16	0.16	0.12	–	0.12	0.14
Supportive family 16	–	0.10	–	–	0.10	0.11
Family communicates well 16	0.24	<b>0.23*</b>	0.21	-0.13	<b>0.21*</b>	0.18
Family pressure 16	-0.21	-0.25	-0.17	0.17	-0.22	-0.19
Rejection 16	–	–	–	–	–	–
Praise and achievement 16	0.14	–	<b>0.15*</b>	–	–	–
Risky behaviour 16	<b>-0.35*</b>	<b>-0.51*</b>	<b>-0.30*</b>	<b>0.34*</b>	<b>-0.49*</b>	<b>-0.37*</b>
Adverse events 16	-0.12	-0.27	–	0.16	-0.21	-0.15
Parent view of self-confidence 16	<b>0.27*</b>	0.13	0.22	–	0.16	<b>0.22*</b>
Parent view of self-efficacy 16	0.29	0.22	<b>0.29*</b>	-0.23	0.23	0.24
Parent view of responsibility 16	0.34	0.34	0.28	-0.24	0.33	0.35
Internal markers 16	0.37	0.33	0.32	-0.20	0.33	0.33
External markers 16	0.23	0.19	0.15	-0.11	0.19	0.23
Positive learning environment 16	0.34	0.36	0.30	-0.20	0.33	0.27
Positive about class 16	0.31	0.32	0.28	-0.18	0.30	0.24
Positive about teachers 16	0.38	<b>0.40</b>	0.36	-0.21	0.35	0.31
Absorbed in learning 16	0.29	0.33	0.26	-0.14	0.32	0.24
Disengaged in learning 16	-0.30	<b>-0.44</b>	-0.33	0.32	<b>-0.41</b>	-0.27
Disrupted learning environment 16	-0.14	-0.17	-0.18	0.20	-0.13	-0.14
Attitude to all work 16	0.39	0.35	0.29	-0.22	0.39	<b>0.48</b>
Internal markers 14	0.36	0.33	<b>0.35*</b>	-0.17	0.34	0.31
Overall ability 14	<b>0.61</b>	<b>0.63</b>	<b>0.48</b>	<b>-0.46</b>	<b>0.60</b>	<b>0.73</b>

\* Variable is included in relevant model.

– indicates  $-0.1 < r < 0.1$ ; all correlations over 0.4 in absolute value are in bold face.

We have two measures of cognitive ability: the cognitive competency (based on a series of tests) and overall ability (based on the perceptions of up to three teachers). These two measures are strongly correlated ( $r = 0.76$  and  $0.64$  at ages 14 and 16, respectively), and usually it was the cognitive competency that added more to the model than overall ability.

## Models fitted

The models are presented in the same order in which they are listed in Table 48, for ease of cross-referencing.

### Thinking and learning at 16

*Thinking and learning* is one of the attitudinal competencies, and correlates most strongly with the age-14 cognitive and attitudinal competencies and measure of overall ability.

The model presented in Table 49 accounted for 50 percent of the variability in *thinking and learning* at 16. The data for four of the young people were excluded from the model as those observations exerted excessive leverage. Most of the variability was accounted for by the *attitudinal composite* at 14 (about 13 percent).

**Table 49: Model to estimate thinking and learning at 16 from age-14 class variables, and age-16 family and friends variables**

	Parameter estimate	Standard error	p-value	$\eta_p^2$ (%)	Partial correlation
Intercept	0.81	0.50	0.104		
Attitudinal composite 14	0.41	0.06	< 0.0001	12.6	0.36
Cognitive composite 14	0.26	0.05	< 0.0001	8.3	0.29
Parent perception of self-confidence 16	0.18	0.04	< 0.0001	4.2	0.21
Risky behaviour 16	-0.19	0.05	< 0.0001	4.3	-0.21
Praise and achievement 16	0.09	0.04	0.034	1.2	0.11
Attendance 16—excellent	0		0.026	3.5	
—very good	-0.08	0.15	0.615		
—good	-0.10	0.15	0.531		
—fair	-0.37	0.17	0.034		
—poor	-0.64	0.20	0.002		
—absences for health reasons	-0.31	0.39	0.427		

The students whose attendance was rated fair, poor, or who had chronic ill-health were rated lower than those whose attendance was rated excellent or who had frequent absences for other reasons (such as sport).

### Focused and responsible at 16

*Focused and responsible* is another of the attitudinal competencies, and correlates most strongly with the age-14 cognitive and attitudinal competencies and measure of overall ability, and moderately strongly with *risky behaviour* on the part of the responding student and their friends.

The model presented in Table 50 accounted for 58 percent of the variability in *focused and responsible* at 16. Most of the variability was accounted for by the *attitudinal composite* at 14 (about 18 percent).

Table 50: Model to estimate focused and responsible at 16 from age-14 class variables, and age-16 family and friends variables

	Parameter estimate	Standard error	p-value	$\eta_p^2$ (%)	Partial correlation
Intercept	2.48	0.47	< 0.0001		
Attitudinal composite 14	0.47	0.05	< 0.0001	17.9	0.42
Risky behaviour 16	-0.32	0.04	< 0.0001	13.6	-0.37
Cognitive composite 14	0.24	0.04	< 0.0001	7.8	0.28
Family communicates well 16	0.10	0.04	0.009	1.8	0.13
Attendance 16—acceptable	0		< 0.0001	6.0	-0.24
—poor	-0.86	0.18	< 0.0001		

The teachers' perceptions on the items used to construct this scale were strongly associated with by the students' behaviour (*risky behaviour*) and unexplained absences than they were on the items used to construct *thinking and learning*.

### Social skills at 16

*Social skills* is another of the attitudinal competencies, and correlates most strongly with the age-14 *cognitive* and *attitudinal competencies* and measure of *overall ability*.

The model presented in Table 51 accounted for 36 percent of the variability in *social skills* at 16, slightly more than was accounted for by the model using family and friends variables only, in the previous chapter (32 percent). The data for two of the young people were excluded as those observations exerted excessive leverage. Most of the variability was accounted for by the *attitudinal composite at 14* (almost 10 percent).

Table 51: Model to estimate social skills at 16 from age-14 class variables, and age-16 family and friends variables

	Parameter estimate	Standard error	p-value	$\eta_p^2$ (%)	Partial correlation
Intercept	0.85	0.59	0.148		
Attitudinal composite 14	0.34	0.05	< 0.0001	9.4	0.31
Parent perception of self-efficacy 16	0.14	0.05	0.004	2.1	0.14
Cognitive composite 14	0.13	0.05	0.006	2.0	0.14
Praise and achievement 16	0.12	0.04	0.002	2.4	0.16
Risky behaviour 16	-0.12	0.05	0.008	1.8	-0.14
Internal markers of progress 14	0.11	0.05	0.017	1.5	0.12
Student values 16—satisfying life	0		0.008	2.5	
—aspirational	0.29	0.14	0.036		
—standing out	-0.15	0.13	0.242		

The young people judged by their teachers to have better *social skills* tended to also be those judged by their parents to have better *self-efficacy*. There was a measure of association between *cognitive achievement*, getting

*praise and achieving* things, and *social skills*. Those with aspirational values had *social skills* scores that on average were 0.45 (equivalent to 4.5 on a percentage scale,  $p = 0.002$ ) higher than those with standing out values, taking all the other variables into account. The variables used in the model presented in Table 51 are different from those in the model presented in Table 46, although the total amounts of variability accounted for are similar.

### Social difficulties at 16

*Social difficulties* is the last of the attitudinal competencies, and correlates most strongly with the age-14 *cognitive* and *attitudinal competencies* and measure of *overall ability*.

The model presented in Table 52 accounted for 29 percent of the variability in *social difficulties* at 16, about the same amount as was accounted for by the model using family and friends variables only, in the previous chapter. Data for one of the young people were excluded from the model because of concerns about leverage. Most of the variability was accounted for by the *cognitive* and *attitudinal composites at 14* (about 11 percent each).

**Table 52: Model to estimate social difficulties at 16 from age-14 class variables, and age-16 family and friends variables**

	Parameter estimate	Standard error	p-value	LMG (%) (confidence interval)	Partial correlation
Intercept	9.22	0.69	< 0.0001		
Attitudinal composite 14	-0.42	0.09	< 0.0001	11.9 (8.4, 16.2)	-0.23
Cognitive composite 14	-0.38	0.07	< 0.0001	11.2 (7.5, 15.2)	-0.25
Risky behaviour 16	0.30	0.07	< 0.0001	6.8 (3.8, 10.7)	0.21

It is not surprising that *risky behaviour* is associated with *social difficulties*, as similar behaviours are used in both measures (one reported by the student, one by the teacher).

### Ability to cope with NCEA at 16

*Ability to cope with NCEA* correlates most strongly with the age-14 *cognitive* and *attitudinal competencies* and measure of *overall ability*.

The model presented in Table 53, accounted for 59 percent of the variability in *ability to cope with NCEA* at 16. Most of the variability was accounted for by the *attitudinal composite at 14* (about 18 percent). Data for five young people were excluded as the observations exerted excessive leverage.

Table 53: Model to estimate ability to cope with NCEA at 16 from age-14 class variables, and age-16 family and friends variables

	Parameter estimate	Standard error	p-value	$\eta_p^2$ (%)	Partial correlation
Intercept	2.73	0.49	< 0.0001		
Attitudinal composite 14	0.40	0.05	< 0.0001	15.1	0.39
Risky behaviour 16	-0.28	0.04	< 0.0001	12.7	-0.36
Cognitive composite 14	0.17	0.04	< 0.0001	4.2	0.20
Family communicates well 16	0.08	0.03	0.019	1.5	0.12
Attendance 16–excellent	0		< 0.0001	10.3	
–very good	-0.01	0.14	0.935		
–good	-0.11	0.14	0.438		
–fair	-0.45	0.16	0.005		
–poor	-0.95	0.18	< 0.0001		
–absences for health reasons	-1.01	0.32	0.001		
History of school decile–mainly 1–2	0		0.006	4.0	
–mainly 3–8	0.36	0.22	0.106		
–mainly 9–10/private	0.68	0.22	0.002		
–mixed	0.36	0.24	0.129		
Student values–satisfying life	0		0.049	1.7	
–aspirational	0.15	0.13	0.232		
–standing out	-0.18	0.12	0.147		

Young people who did not or were not able to attend school regularly were on average judged to be markedly less likely to cope with and succeed in NCEA. Those with aspirational values were perceived to be more likely to be successful than those whose values were “standing out” ( $p = 0.015$ ).

### Overall ability at 16

*Overall ability* correlates most strongly with the age-14 *cognitive competency* and measure of *overall ability*.

The model presented in Table 54 accounted for 59 percent of the variability in *overall ability* at 16. Data for five of the young people were excluded as those observations exerted excessive leverage. Most of the variability was accounted for by *cognitive competency* at 14 (about 34 percent).

Table 54: Model to estimate overall ability at 16 from age-14 class variables, and age-16 family and friends variables

	Parameter estimate	Standard error	p-value	$\eta_p^2$ (%)	Partial correlation
Intercept	-1.25	0.61	0.042		
Cognitive composite 14	0.56	0.06	< 0.0001	21.8	0.47
Attitudinal composite 14	0.48	0.07	< 0.0001	11.5	0.34
Parent perception of self-confidence 14	0.20	0.05	0.0002	3.8	0.19
Risky behaviour 16	-0.20	0.05	0.002	3.8	-0.20
Attendance—excellent	0		0.003	6.3	
—very good	0.19	0.19	0.316		
—good	-0.09	0.19	0.630		
—fair	-0.44	0.22	0.046		
—poor	-0.96	0.25	0.0002		
—absences for health reasons	-0.70	0.44	0.111		

Young people who did not attend school regularly were on average judged to have a lower ability level. Those who showed good *cognitive* and *attitudinal competency at age 14* were likely to be judged to have high levels of ability at age 16.

## Student perceptions of the class: attitudes to work

The correlations between the four variables that capture the student's attitude to work, and with the possible explanatory variables are given in Table 55.

**Table 55: Correlations between the student description of their attitude variables and explanatory variables**

	Internal markers of success 16	External markers of success 16	Absorbed in learning 16	Attitude to all work 16
External markers of success 16	<b>0.52</b>			
Absorbed in learning 16	<b>0.51</b>	0.18		
Attitude to all work 16	0.39	0.21	<b>0.45</b>	
Cognitive composite 14	0.33*	0.28*	–	0.34
Attitudinal composite 14	0.28	0.16	0.15	0.29
Relevant learning opportunities 16	0.10	–	0.35*	0.11
Comparative learning environment 14	–	–	–	–
Friends with risky behaviour 16	-0.14	–	-0.21*	-0.15
Solid friendships 16	0.12	-0.10	–	–
Extending friendships 16	0.29	–	0.27	0.17
Inclusive family 16	0.28	–	0.20	0.18
Supportive family 16	0.24	–	0.23	0.23*
Family communicates well 16	0.32*	0.11	0.39*	0.21
Family pressure 16	-0.14	–	–	-0.14
Rejection 16	–	–	–	–
Praise and achievement 16	0.26*	–	0.22*	0.19*
Risky behaviour 16	-0.13	–	-0.19	-0.15
Adverse events 16	–	–	–	–
Parent view of self-confidence 16	0.20	–	0.14	0.21
Parent view of self-efficacy 16	0.15	–	–	0.13
Parent view of responsibility 16	0.26*	0.15	0.12	0.19
Internal markers 14	<b>0.41*</b>	0.20	0.27	0.25
External markers 14	0.23	0.39*	–	0.13
Engaged 14	0.24	–	0.20	0.24
Confident at school 14	0.27	0.18	0.18	0.25
Positive about class 14	0.20	–	0.24	0.14
Positive about teachers 14	0.21	–	0.23	0.16
Absorbed in learning 14	0.31	0.11	0.38*	0.25*
Disengaged in learning 14	-0.14	–	0.14	0.20
Overall achievement 14	0.35	0.28	0.16	0.37*

\* Variable is included in relevant model.

– indicates  $-0.1 < r < 0.1$ ; all correlations over 0.4 in absolute value are in **bold face**.

Models fitted

*Internal markers of progress at 16*

*Internal markers* correlates most strongly with the age-14 *cognitive competency* and measure of *internal markers of progress*.

The model presented in Table 56 accounted for 27 percent of the variability in *internal markers* at 16. Most of the variability was accounted for by *internal markers of progress at 14* (about 10 percent).

**Table 56: Model to estimate internal markers of progress at 16 from age-14 class variables, and age-16 family and friends variables**

	Parameter estimate	Standard error	p-value	LMG (%) (confidence interval)	Partial correlation
Intercept	1.47	0.51	0.004		
Internal markers 14	0.26	0.05	< 0.0001	9.1 (4.6, 14.4)	0.27
Cognitive composite 14	0.18	0.04	< 0.0001	6.4 (3.5, 10.3)	0.20
Family communicates well 16	0.19	0.04	< 0.0001	5.8 (2.7, 10.0)	0.21
Praise and achievement 16	0.14	0.04	0.0008	3.6 (1.3, 6.7)	0.17
Parent view of responsibility 16	0.12	0.05	0.018	3.1 (1.2, 6.1)	0.12

How the young people judged their progress had not changed markedly between age 14 and age 16, and using *internal markers of progress* was associated with, among other things, *cognitive* achievement, and success at something or recognition in some area (*praise and achievement*).

*External markers of progress at 16*

*External markers* correlates with little else. The strongest association is with the age-14 measure of using external markers.

The model presented in Table 57 accounted for 20 percent of the variability in *external markers* at 16.

**Table 57: Model to estimate external markers of progress at 16 from age-14 class variables, and age-16 family and friends variables**

	Parameter estimate	Standard error	p-value	$\eta_p^2$ (%)	Partial correlation
Intercept	2.68	0.42	< 0.0001		
External markers 14	0.34	0.04	< 0.0001	13.2	0.36
Cognitive composite 14	0.20	0.06	0.002	2.3	0.15
Maternal qualifications–none	0		0.048	2.3	
–mid-secondary school/trade	0.29	0.26	0.262		
–senior secondary school/tertiary	-0.31	0.31	0.305		
–university	0.16	0.31	0.619		
–difference between mid-secondary/trade and senior secondary/tertiary	-0.61	0.21	0.005		

There are indications of some possible differences with respect to use of external markers of progress between those with mothers with mid-secondary or trade qualifications (more likely to use external markers) and those with mothers with senior secondary or tertiary qualifications (less likely to use them).

### *Absorbed in learning at 16*

*Absorbed in learning* correlates moderately with few of the age-14 variables. The strongest associations are with *relevant learning opportunities*, *family communicates well*, and *absorbed in learning 14*.

The model presented in Table 58 accounted for 40 percent of the variability in *absorbed in learning* at 16.

**Table 58: Model to estimate absorbed in learning at 16 from age-14 class variables, and age-16 family and friends variables**

	Parameter estimate	Standard error	p-value	$\eta_p^2$ (%)	Partial correlation
Intercept	0.92	0.42	0.029		
Relevant learning opportunities 16	0.34	0.04	< 0.0001	13.8	0.37
Absorbed in learning 14	0.29	0.04	< 0.0001	10.5	0.32
Family communicates well 16	0.15	0.03	< 0.0001	4.7	0.22
Praise and achievement 16	0.09	0.03	0.007	1.8	0.14
Friends with risky behaviour 16	-0.07	0.03	0.010	1.7	-0.13
Student values 16–satisfying life	0		0.0006	3.7	
–aspirational	0.17	0.11	0.130		
–standing out	-0.27	0.10	0.010		
Pattern of TV watching–mainly low	0		0.009	2.3	
–mixed	-0.22	0.11	0.042		
–mainly high	-0.33	0.12	0.005		
History of involvement in bullying 8–14			0.001	3.3	
–been involved once	0				
–involved at least twice	0.32	0.10	0.002		
–no involvement	-0.04	0.11	0.686		
Student interests 14–sports	0		0.027	2.3	
–computer games/none	0.20	0.12	0.113		
–reading, arts, sports	0.18	0.11	0.108		
–creative interests	0.41	0.14	0.003		

Young people who were *absorbed in learning* at 16 were likely to have shown similar tendencies at age 14, to see the connection between what they learn at school and the real world, to have aspirational values or to value a satisfying life (rather than valuing standing out), to have mainly watched less TV than others between the ages of 8 and 14, to have been involved occasionally in bullying (possibly as the victim, because of their interests), and to have creative interests.

### *Attitude to all work at 16*

Attitude to all work correlates moderately with age-14 cognitive competency and overall ability.

The model presented in Table 59 accounted for 21 percent of the variability in *attitude to all work* at 16.

**Table 59: Model to estimate attitude to all work at 16 from age-14 class variables, and age-16 family and friends variables**

	Parameter estimate	Standard error	p-value	LMG (%) (confidence interval)	Partial correlation
Intercept	2.3	0.37	< 0.0001		
Overall achievement 14	0.16	0.02	< 0.0001	12.0 (7.9, 16.6)	0.34
Absorbed in learning 14	0.14	0.04	0.001	4.6 (2.1, 8.6)	0.16
Supportive family 16	0.09	0.03	0.004	2.9 (1.0, 6.2)	0.14
Praise and achievement 16	0.08	0.03	0.013	2.1 (0.5, 5.0)	0.12

### Student perceptions of the class

There are some moderate correlations amongst the attitude to work and perceptions of class variables (Table 60). The strongest correlation is between *positive about class* and *teacher* and *absorbed in learning*. Students who are working in a safe, stimulating environment where they can explore new ideas and their developing abilities tend to take responsibility for their work, and for ensuring that it is high quality. There are slightly weaker correlations between *positive about class* and *teacher*, *disengaged in learning*, and *attitude to all work*. Students in a safe, stimulating environment are less likely to divert time and energy (or to feel the need to) behaving irresponsibly and unco-operatively, and are more likely to be confident in their achievement. *Disrupted learning environment* is moderately correlated with *disengaged in learning*, but shows no association with using *internal markers* of success, or with being *absorbed in learning*, or to the student's *attitude to work*. It seems that a student may behave badly where that is acceptable (or is happening anyway), but this does not necessarily mean that the student will have a bad attitude to work. Effective teachers working in a learning-friendly school environment are more likely to have classes in which students who behave responsibly and co-operatively are the norm.

**Table 60: Correlations among the student description of class and attitude to work variables**

	Positive about class	Positive about teachers	Disengaged in learning	Disrupted learning environment	Internal markers	External markers	Absorbed in learning
Positive about teachers	<b>0.84</b>						
Disengaged in learning	-0.39	<b>-0.43</b>					
Disrupted learning environment	-0.17	-0.23	<b>0.46</b>				
Internal markers	<b>0.48</b>	<b>0.44</b>	-0.28	-			
External markers	0.16	0.17	-	-	<b>0.52</b>		
Absorbed in learning	<b>0.63</b>	<b>0.49</b>	-0.38	-	<b>0.51</b>	0.18	
Attitude to all work	<b>0.41</b>	<b>0.40</b>	-0.23	-	0.39	0.21	<b>0.45</b>

- indicates  $-0.1 < r < 0.1$ ; all correlations over 0.4 in absolute value are in bold face.

The correlations between the four variables that capture the student's attitude to class and how they themselves behave, and with the possible explanatory variables are given in Table 61.

**Table 61: Correlations between the student description of their class and behaviour in it and explanatory variables**

	Positive about class 16	Positive about teacher 16	Disengaged in learning 16	Disrupted learning environment 16
Positive about teacher 16	<b>0.84</b>			
Disengaged in learning 16	<b>-0.39</b>	<b>-0.43</b>		
Disrupted learning environment 16	-0.17	-0.23	<b>0.46</b>	
Cognitive composite 14	0.14	0.20*	-0.17	0.17
Attitudinal composite 14	0.18	0.22	-0.24	–
Relevant learning opportunities 16	<b>0.41*</b>	0.29*	–	–
Comparative learning environment 14	–	–	0.12	0.15
Friends with risky behaviour 16	0.19	0.20	-0.37*	–
Solid friendships 16	0.13	0.13	–	-0.15
Extending friendships 16	0.34*	0.25	-0.13	–
Inclusive family 16	0.31*	0.35*	-0.31*	-0.18*
Supportive family 16	0.28	0.32	-0.26	-0.14
Family communicates well 16	0.32	0.32	-0.30	–
Family pressure 16	0.13	0.17	0.29	0.20
Rejection 16	–	0.11	0.12	0.18*
Praise and achievement 16	0.16	0.13	–	–
Risky behaviour 16	0.17	0.25*	0.35	0.16
Adverse events 16	0.14*	0.16	0.17	0.12
Parent view of self-confidence 16	–	–	–	–
Parent view of self-efficacy 16	–	–	–	–
Parent view of responsibility 16	–	0.13	-0.17	–
Internal markers 14	0.21	0.21	-0.17	–
External markers 14	–	–	–	–
Engaged 14	0.23	0.30	-0.33	-0.14
Confident at school 14	0.18	0.20	-0.18	–
Positive about class 14	0.31*	0.30	-0.16	–
Positive about teachers 14	0.30	0.35*	-0.20	–
Absorbed in learning 14	0.30	0.27	-0.23	–
Disengaged in learning 14	-0.13	-0.20	<b>0.46*</b>	0.26*
Overall achievement 14	0.20*	0.23	-0.18	-0.11

\* Variable is included in relevant model.

– indicates  $-0.1 < r < 0.1$ ; all correlations over 0.4 in absolute value are in **bold face**.

## Models fitted

### *Positive about class at 16*

Positive about class correlates moderately with relevant learning opportunities at 16.

The model presented in Table 62 accounted for 38 percent of the variability in *positive about class* at 16. Data for three students were excluded from the model as they exerted excessive leverage.

**Table 62: Model to estimate positive about class at 16 from age-14 class variables, and age-16 family and friends variables**

	Parameter estimate	Standard error	p-value	LMG (%) (confidence interval)	Partial correlation
Intercept	1.73	0.36	< 0.0001		
Relevant learning opportunities 16	0.33	0.04	< 0.0001	14.9 (10.3, 19.9)	0.43
Positive about class 14	0.16	0.03	< 0.0001	7.8 (4.8, 11.8)	0.25
Extending friendships 16	0.13	0.03	< 0.0001	6.2 (3.2, 10.0)	0.20
Inclusive family 16	0.12	0.03	< 0.0001	5.0 (2.4, 8.5)	0.20
Overall achievement 14	0.07	0.02	0.0001	3.3 (1.3, 5.8)	0.19
Adverse events 16	-0.10	0.04	0.019	1.5 (0.3, 3.5)	-0.12

The largest single contribution to the model was made by *relevant learning opportunities*. How the young people felt age 14 showed far less of an association.

### *Positive about teacher at 16*

*Positive about teacher* is not strongly correlated with any of the other scales.

The model presented in Table 63 accounted for 30 percent of the variability in *positive about teacher* at 16. Data for eight students were excluded from the model as they exerted excessive leverage.

Most of the variability was accounted for by *relevant learning opportunities*.

**Table 63: Model to estimate positive about teacher at 16 from age-14 class variables, and age-16 family and friends variables**

	Parameter estimate	Standard error	p-value	LMG (%) (confidence interval)	Partial correlation
Intercept	2.26	0.49	< 0.0001		
Relevant learning opportunities 16	0.27	0.04	< 0.0001	6.7 (3.7, 10.1)	0.30
Positive about teacher 14	0.09	0.02	< 0.0001	8.3 (5.0, 12.3)	0.27
Inclusive family 16	0.19	0.03	< 0.0001	7.7 (4.2, 11.9)	0.26
Cognitive composite 14	0.13	0.03	< 0.0001	3.6 (1.5, 6.7)	0.20
Risky behaviour 16	-0.20	0.03	< 0.0001	4.8 (2.2, 8.6)	-0.18

*Disengaged in learning at 16*

*Disengaged in learning* correlates moderately with involvement with *risky behaviour* (self and friends) at age 16 and age-14 *disengaged in learning*.

The model presented in Table 64 accounted for 35 percent of the variability in *disengaged in learning* at 16. Data for four students were excluded from the model as they exerted excessive leverage.

**Table 64: Model to estimate disengaged in learning at 16 from age-14 class variables, and age-16 family and friends variables**

	Parameter estimate	Standard error	p-value	$\eta_p^2$ (%)	Partial correlation
Intercept	3.61	0.41	< 0.0001		
Disengaged in learning 14	0.37	0.04	< 0.0001	14.9	0.39
Inclusive family 16	-0.20	0.04	< 0.0001	5.5	-0.24
Friends with risky behaviour 16	0.16	0.03	< 0.0001	6.9	0.26
Pattern of TV watching--mainly low	0		0.002	2.9	
-mixed	0.34	0.13	0.008		
-mainly high	0.38	0.13	0.004		

*Disrupted learning environment at 16*

*Disrupted learning environment* correlates weakly with age-14 *disengaged in learning*.

The model presented in Table 65 accounted for 13 percent of the variability in *disrupted learning environment* at 16. Data for four students were excluded from the model as they exerted excessive leverage.

**Table 65: Model to estimate disrupted learning environment at 16 from age-14 class variables, and age-16 family and friends variables**

	Parameter estimate	Standard error	p-value	$\eta_p^2$ (%)	Partial correlation
Intercept	4.55	0.41	< 0.0001		
Disengaged in learning 14	0.21	0.04	< 0.0001	5.7	0.24
Rejection 16	0.15	0.05	0.002	2.4	0.16
Inclusive family 16	-0.08	0.04	0.036	1.1	-0.10
Pattern of TV watching--mainly low	0		0.012	2.2	
-mixed	0.32	0.13	0.004		
-mainly high	0.20	0.14	0.142		

