

6. Family and friends

If we are aiming to explore the nature of engagement at school, where do we start? Or rather, if we are to start at the beginning, what is the beginning? Our young people at age 16 have been influenced, in approximately sequential order, by their family, ECE experiences, and school. However, along the way there has been a continuous feedback between what is happening at home, or at least not at school, and at school. When we look at how they feel at school as they near the end of their years of secondary education, these feelings will be based on their out-of-school life (family and friends), and at-school life (teachers and peers).

We have an abundance of measures of aspects of family life, from the student's point of view, as well as of the student's relationship with her friends. When we build models about engagement, only a few of these variables will be included in any one of the models, yet there is a mass of associations between the various family and friends variables. So before doing anything else, it is interesting to explore the relationship between the family and friends variables, and in particular at the relationship between the age-14 versions of these variables (as explanatory variables) and the age-16 versions (as outcome variables).

In this chapter I first list the variables used in the models, then outline the model-fitting process, and finally present the analysis for the family variables and then the friends and life variables.

Age-16 family and friends variables used

The family variables we are exploring are:

- *inclusive family*
- *supportive family*
- *family communicates well*
- *family pressure.*

The friends variables, which include some life variables, and two of the attitudinal competencies are:

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

Model-fitting process

The models included three categories of explanatory variables: the age-14 family, friends, and life variables; demographic variables; and a mix of discrete age-14 and age-16 variables likely to be associated with some or all of the outcome variables.

Explanatory variables used

Age-14 family, friends, and life variables

These variables were included to see to what extent they were, or were not, important to the age-16 variables. It should be noted that while several of the variables were constructed from the same or similar items/questions at both ages 14 and 16, these are all "empirical" scales rather than "theoretical" scales, and the age-14 and age-16 variables of the same name should be seen as broadly similar rather than repetitions of the same measure (see *Scale variables, cluster variables, and history variables* for details). Our items/questions asked of the parents, teachers, and young people were based on our previous research and wider research literature. We developed scale variables from the patterns of responses found in the data, so these scales are indirectly related to the research literature which was used for item selection; we did not form any scales based directly on scales used in other research. However, there are parallels between what we found and what is reported in the literature.

At ages 14 and 16, most of the factor scale variables were left on a "natural" scale, so that if, for example, family pressure was a "bad thing", likely to be associated with low levels of achievement, then a high score on the scale was "bad" and a low score was "good", and family pressure had a negative correlation with the competencies:

- *rejection*
- *praise and achievement*
- *friends with risky behaviour*
- *solid friendships*
- *risky behaviour*
- *social skills with peers¹*
- *social skills with peers and adults*
- *family communicates well*
- *family pressure*
- *inclusive family*
- *parent-child friction at 14*
- *close parent-child communication*
- *self-management* (attitudinal competency based on teacher report that: student checks work before handing it in, follows class routines without reminders, is on time, brings all the equipment necessary, takes responsibility for their actions and does not act without thinking of the consequences²)
- *self-efficacy* (attitudinal competency based on teacher report that: student is optimistic, willing to learn from mistakes, will carry out leadership roles, sees the point of view of others³)
- parent view of *self-confidence*
- parent view of *self-efficacy*

¹ Note that some of the same items were used at age 16 to form *social skills*, and others to form *social difficulties*.

² At age 16, these items and others were used to form *focused and responsible*.

³ At age 16, some of these items and others were used to form *thinking and learning*.

- *supportive family*
- parent view of *responsibility*.

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*.

Attendance is used in both its full form (with seven levels) and its dichotomised form, depending on which accounted for more of the variability in the model (see also the chapter *Scale variables, cluster variables and history variables*).

Fitting the models

Correlations between explanatory variables, between outcome variables, and between outcome and explanatory variables are presented first. Then the final model for each outcome variable is presented.

The models were fitted in the stages:

- basic model of age-14 family, friends, and life variables: all age-14 variables with correlations greater than 0.2 in absolute value were put into the model, then all variables not statistically significant (at the 5 percent level) were dropped from the model; typically the model includes an age-14 equivalent to the age-16 outcome variable
- 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
- a check of all continuous variables was made to ensure that no other variables with correlations greater than 0.15 in absolute value contributed significantly to the model (including those previously dropped)
- examination of variance inflation factors (VIFs)⁴, 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 model⁵, typically it was the same individuals across all models who were excluded from the model on this basis.

⁴ VIFs measure the extent to which the variance of a regression estimate is inflated by multicollinearity. The minimum value is 1 (indicating no inflation) and there is no upper limit. In this study, values over two or three appear to indicate possible problems.

⁵ “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.

Family variables

The correlations between the age-16 family variables and the continuous explanatory variables are presented first, and then the results of the model-fitting process.

Interrelationships between the variables

We have four outcome variables, 15 continuous explanatory variables, and a total of 16 possible discrete explanatory variables. Many of the explanatory variables show associations with each of the outcome variables, but typically only 4–8 explanatory variables are included in any one model.

We look first at the inter-correlations between all the continuous outcome and explanatory variables. This gives a broad picture of the “if a young person has/at age 14 had this attribute, then they are very/quite/unlikely to also have these other attributes” type. This is not an indication of causation, only of association. The explanatory variables included in the model presented are likely to be among those most strongly correlated with the outcome variable, but where there are several explanatory variables strongly correlated with each other ($r > 0.7$) as well as with the outcome variable, it is likely that only one will be included in the model (including more than one would result in a multicollinear model).

Some of the correlations are not due to true relationships, but are because of a mediating variable: A is correlated with B (but not C); B is correlated with C; so A appears to be correlated with C. If A and B were included in a model to predict C, it is likely that B would be significant, but A would not.

Another situation in which a subset of the explanatory variables explains the variation in the outcome variable almost as well as the full set does is when there are several variables all moderately correlated with the outcome variable and with each other. If the correlation with each other is not strong enough to cause multicollinearity, it can still be true that a subset of the explanatory variables explains almost as much of the total variability in the outcome variable as the whole set does. In this case, several competing models, each including a different subset of the explanatory variables, can explain almost equal amounts of the variability in the outcome variable, and which subset is presented will depend at least in part on chance, or perhaps on the order in which the variables were selected.

The correlation coefficients between all the explanatory variables are presented in 0. To save space, family pressure and praise and achievement are omitted from the table, as neither have correlations of over 0.4 (or less than -0.4) with any other variable in the table. Correlations of at least 0.4 in absolute value are shown in **bold face**.

Table 29: Correlation between the age-14 family and life variables

	Social skills with peers and adults	Family communicates well	Inclusive family	Parent-child friction	Close parent-child communication	Self-management	Self-efficacy	Child self-confident	Child's self-efficacy	Risky behaviour	Rejection	Supportive family
Family communicates well	0.18											
Inclusive family	0.26	0.57										
Parent-child friction	-0.33	-0.14	-0.24									
Close parent-child communication	0.19	0.32	0.24	-0.31								
Self-management	0.80	0.12	0.20	-0.33	0.14							
Self-efficacy	0.85	0.22	0.27	-0.33	0.19	0.75						
Child self-confident	0.17	0.18	0.14	-0.23	0.48	-	0.21					
Child's self-efficacy	0.41	0.16	0.18	-0.51	0.45	0.33	0.39	0.53				
Risky behaviour	-0.34	-0.21	-0.32	0.28	-0.12	-0.45	-0.33	-	-0.19			
Rejection	-	-0.23	-0.40	0.24	-	-	-	-	-0.10	0.45		
Supportive family	0.26	0.64	0.68	-0.26	0.30	0.20	0.29	0.14	0.24	-0.28	-0.35	
Child responsible	0.41	0.14	0.18	-0.37	0.34	0.40	0.40	0.52	0.69	-0.17	-	0.19

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

The strongest associations are between the three attitudinal competencies of *self-management*, *self-efficacy*, and *social skills with peers and adults* ($r > 0.75$). The next strongest are between the family variables of *supportive*, *inclusive*, and *communicates well* ($0.57 < r < 0.68$), then between the parent perceptions of the child's *self-efficacy*, *self-confidence*, and *responsibility*, and between these and the attitudinal competencies ($0.5 < r < 0.69$). *Rejection* correlates moderately with *risky behaviour*, and *inclusive family* (a negative correlation, as the more inclusive the family is, the less likely rejection is) and *self-management* (also negative).

The correlations between the outcome variables and with the explanatory variables are given in 0. The strongest correlations ($r > 0.4$) are shown in **bold face**. Where there is a strong correlation between an outcome and explanatory variable, it is likely that the explanatory variable will be in the model. The actual variables included in the models are indicated by an asterisk. Because of the strong correlations between the age-14 versions of

family communicates well, *inclusive family*, and *supportive family* (all over 0.57), most often only one of these variables is included in each of the four models, in spite of all three being almost equally strongly correlated with the outcome variable.

Table 30: Correlation between the age-16 family variables and with the age-14 family and life variables

	Family communicates well 16	Inclusive family 16	Supportive family 16	Family pressure 16
Inclusive family 16	0.69			
Supportive family 16	0.70	0.73		
Family pressure 16	-0.40	-0.58	-0.47	
Social skills, peer and adult 14	0.17	0.11	–	0.19
Family communicates well 14	0.51*	0.39*	0.40	0.15
Family pressure 14	-0.24*	-0.29*	-0.22	0.45*
Inclusive family 14	0.40	0.49*	0.39	-0.32*
Parent–child friction 14	-0.20	-0.25*	-0.22	0.29*
Praise and achievement 14	0.21*	0.19*	0.21	–
Close parent–child communication 14	0.26	0.19	0.24*	-0.14
Self-management 14	0.11	–	–	-0.16
Self-efficacy 14	0.20	0.16	0.11	-0.17
Child self-confident 14	0.22	0.14	0.16	-0.13
Child's self-efficacy 14	0.24	0.20	0.19	-0.21
Risky behaviour 14	-0.18	-0.16	-0.14	0.19
Rejection 14	-0.19	-0.23	-0.20	0.24
Supportive family 14	0.43	0.43	0.52*	-0.23
Child responsible 14	0.21*	0.18	0.11	-0.16

* 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

The models are presented in the same order in which they are listed in Table 30, for ease of cross-referencing.

Family communicates well at 16

From the correlations, we can identify that a family that communicates well at age 16 was likely to have also done so at 14, as well as having the attributes of being inclusive and supportive. A child from a close and supportive family was slightly more likely to achieve things, be more confident, have good self-efficacy, be responsible, and was slightly less likely to come from a family with friction, or to be involved in risky behaviour or feel rejected.

The model presented in Table 31 accounted for 32 percent of the variability in family communicates well at 16. Most of the variability was accounted for by family communicates well at 14 (about 20 percent). The model suggests that while family relationships do change over time, it is not by that much.

Table 31: Model to estimate family communicates well at 16 from age-14 variables

	Parameter estimate	Standard error	p-value	η_p^2 (%)	Partial correlation
Intercept	3.52	0.50	< 0.0001		
Family communicates well 14	0.37	0.04	< 0.0001	20.2	0.45
Family pressure 14	-0.13	0.04	0.0003	2.9	-0.17
Praise and achievement 14	0.10	0.04	0.016	1.3	0.11
Child responsible 14	0.10	0.05	0.032	1.0	0.10
Financial situation at 14—comfortable	0		0.026	1.7	
—moderate	-0.17	0.14	0.201		
—difficult	-0.43	0.16	0.008		
Reading pattern 8–14—enjoy reading	0		0.042	1.9	
—mainly enjoy reading	0.06	0.15	0.705		
—mixed responses	0.22	0.15	0.153		
—repeated lack of enjoyment	-0.48	0.25	0.057		

All the partial correlations are less strong than the corresponding simple correlations, implying that there is some overlap in the information provided in the model (the explanatory variables are, as shown above, correlated).

The only discrete variables to have an indicative association were the financial situation at age 14: families in a comfortable situation were more likely to communicate well than those in a difficult situation, possibly a result of having more time and energy and less of a daily struggle to make ends meet; and reading pattern where there were indications that there was an association between a lack of enjoyment of reading and a lack of good communication in the home. The most marked difference was between those who did not enjoy reading and those who gave mixed responses—perhaps as they enjoyed communicating more than reading!

Inclusive family at 16

The correlations show the strongest association between the inclusiveness of the family at 16 and the same variable at age 14 and the family having been supportive.

The model presented in Table 32 accounted for 30 percent of the variability in inclusive family at 16. The variable accounting for the most of this variability was inclusive family at 14 (14 percent).

Table 32: Model to estimate inclusive family at 16 from age-14 variables

	Parameter estimate	Standard error	p-value	LMG (%) (confidence interval)	Partial correlation
Intercept	4.84	0.43	< 0.0001		
Inclusive family 14	0.29	0.05	< 0.0001	13.6 (9, 18)	0.27
Family communicates well 14	0.12	0.04	0.001	7.4 (4, 11)	0.15
Family pressure 14	-0.10	0.04	0.010	4.0 (2, 6)	-0.12
Parent-child friction 14	-0.11	0.04	0.016	2.8 (1, 5)	-0.11
Praise and achievement 14	0.08	0.04	0.028	1.9 (1, 4)	0.10

An inclusive family is likely to stay one, and to be inclusive, communicate well, and have less friction and pressure rather than more. There is an association between students coming from inclusive families and getting recognition for achievements.

Supportive family at 16

From the correlations, we can identify that a supportive family at age 16 was likely to have also been so at 14, as well as having the attributes of being inclusive and communicating well.

The model presented in Table 33 accounted for 29 percent of the variability in *supportive family at 16*. Most of the variability was accounted for by *supportive family at 14* (about 28 percent).

Table 33: Model to estimate supportive family at 16 from age-14 variables

	Parameter estimate	Standard error	p-value	η_p^2 (%)	Partial correlation
Intercept	3.41	0.46	< 0.0001		
Supportive family 14	0.45	0.04	< 0.0001	21.7	0.47
Close parent-child communication 14	0.11	0.05	0.031	1.1	0.10
Financial situation at 14-comfortable	0		0.006	2.3	
-moderate	-0.20	0.15	0.184		
-difficult	-0.57	0.18	0.002		

Mutually supportive families tend to remain so across time, and this characteristic of a family is more difficult for those in difficult financial circumstances.

Family pressure at 16

From the correlations, we can identify that a family with *family pressure at age 16* was likely to have a similar profile at 14, but none of the other variables were as strongly correlated.

The model presented in Table 34 accounted for 27 percent of the variability in *family pressure at 16*. Three of the young people were excluded from this analysis as they appeared as outliers in the analysis of residuals.

Table 34: Model to estimate family pressure at 16 from age-14 variables

	Parameter estimate	Standard error	p-value	η_p^2 (%)	Partial correlation
Intercept	4.13	0.54	< 0.0001		
Family pressure 14	0.38	0.05	< 0.0001	12.7	0.36
Inclusive family 14	-0.16	0.05	0.002	2.2	-0.15
Parent-child friction 14	0.16	0.06	0.006	1.7	0.13
Reading pattern 8-14-enjoy reading	0		0.009	2.6	
-mainly enjoy reading	0.09	0.17	0.548		
-mixed responses	-0.39	0.17	0.025		
-repeated lack of enjoyment	0.44	0.29	0.121		

Family pressure was associated with *family pressure* being felt at age 14, as well as a certain amount of friction (*family pressure* at 16 was more likely where there was friction at 14).

Those who had mixed pattern of enjoyment of reading tended to come from families with less pressure than those who always enjoyed reading and those who never enjoyed reading. This may be because the types of pressure differed for those who did and did not enjoy reading.

Variables about friends

In this section we explore the associations between the way the family members relate to each other (typically, at age 16), the way the young person related to their friends at age 14, and how the young person related to friends at age 16.

Interrelationships between the variables

We have nine outcome variables, 17 continuous explanatory variables (the 15 used for the family variables above, plus age-14 measures of *solid friendships* and *risky behaviour*; the four age-16 family variables modelled above were used to describe current family relations, rather than at age 14), and a total of 16 possible discrete explanatory variables.

The correlations between the age-16 family variables, and age-14 friends and life variables are presented in two tables, as there are too many variables to fit into a single table. The variables fell naturally into two groups, with the age-14 attitudinal competencies being common to both groups. The first group consists of the age-14 attitudinal competencies plus the age-16 family variables and the age-14 friendship variables (Table 35), and the second consists of the age-14 attitudinal competencies plus the age-14 parent views of the young person's efficacy, responsibility, self-confidence, parent-child friction, and close parent-child communication (Table 36). Correlations within the two groups of variables are mainly moderate to strong, but those between the groups are all weak (under 0.4).

Table 35: Correlation between the age-16 family and age-14 attitudinal competencies and friendship variables

	Social skills with peers and adults 14	Self-management 14	Self-efficacy 14	Family communicates well 16	Inclusive family 16	Supportive family 16	Family pressure 16	Risky behaviour 14	Rejection 14	Friends with risky behaviour 14	Solid friendships 14
Self-management 14	0.80										
Self-efficacy 14	0.85	0.75									
Family communicates well 16	0.17	0.11	0.20								
Inclusive family 16	0.11	–	0.16	0.69							
Supportive family 16	–	–	0.11	0.70	0.73						
Family pressure 16	-0.19	-0.16	-0.17	-0.40	-0.58	-0.47					
Risky behaviour 14	-0.34	-0.45	-0.33	-0.18	-0.16	-0.14	0.19				
Rejection 14	–	–	–	-0.19	-0.23	-0.20	0.24	0.45			
Friends with risky behaviour 14	-0.31	-0.40	-0.26	-0.16	–	-0.13	–	0.62	0.32		
Solid friendships 14	0.19	0.14	0.17	0.20	0.19	0.17	-0.11	-0.19	-0.26	-0.34	
Praise and achievement 14	–	–	–	0.21	0.19	0.21	–	0.28	0.17	–	0.22

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

There are very strong associations between the three attitudinal composite variables, and strong associations between the three “positive” family variables. There is also a cluster of moderate associations between the “risk” variables: *risky behaviour*, *friends with such behaviour*, *rejection*, and poor *self-management*.

There are at best weak associations between the attitudinal competencies (how the teacher perceives the student) and the family characteristics, or between earning praise and recognition of an achievement and the other variables. The only variable with which *rejection* was moderately associated was *risky behaviour*.

Table 36: Correlation between the age-14 attitudinal competencies and parent perception of the young person variables

	Social skills with peers and adults 14	Self-management 14	Self-efficacy 14	Parent-child friction 14	Close parent-child communication 14	Child self-confident 14	Child's self-efficacy 14
Self-management 14	0.80						
Self-efficacy 14	0.85	0.75					
Parent-child friction 14	-0.33	-0.33	-0.33				
Close parent-child communication 14	0.19	0.14	0.19	-0.31			
Child self-confident 14	0.17	-	0.21	-0.23	0.48		
Child's self-efficacy 14	0.41	0.33	0.39	-0.51	0.45	0.53	
Child responsible 14	0.41	0.40	0.40	-0.37	0.34	0.52	0.69

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

There are moderate associations between close parent-child communication and the parent perceptions of the young person variables and between the parent perception variables. There are weaker associations between the teacher (attitudinal competencies) and parent perceptions of the young person.

The correlations between the outcome variables about friends and with the explanatory variables are given in Table 37. The strongest correlations ($r > 0.4$) are shown in **bold face**. Where there is a strong correlation between an outcome and explanatory variable, it is likely that the explanatory variable will be in the model. The actual variables included in the models are indicated by an asterisk.

Table 37: Correlation between the age-16 friend variables and with the age-14 friend, family, and life variables

	Solid friendships 16	Friends with risky behaviour 16	Risky behaviour 16	Extending friendships 16
Friends with risky behaviour 16	-0.14			
Risky behaviour 16	–	0.67		
Extending friendships 16	0.48	-0.18	–	
Self-management 14	–	-0.41*	-0.45*	0.10
Self-efficacy 14	0.13	-0.26	-0.34	0.21
Family communicates well 16	0.18	-0.23	-0.18	0.38*
Inclusive family 16	0.31*	-0.21	-0.17	0.30
Supportive family 16	0.28	-0.19*	-0.16	0.29
Family pressure 16	-0.22	0.23*	0.30*	-0.17
Risky behaviour 14	-0.11	0.50	0.58*	–
Rejection 14	-0.14	0.18	0.22	–
Friends with risky behaviour 14	-0.12	0.52*	0.46	–
Solid friendships 14	0.33*	-0.11	–	0.23*
Praise and achievement 14	0.16	0.12	0.13	0.27*
Parent–child friction 14	-0.10	0.21	0.21	-0.14
Close parent–child communication 14	–	-0.14	–	0.13
Child self-confident 14	0.10	–	–	0.16
Child's self-efficacy 14	0.15	-0.23	-0.23	0.15
Child responsible 14	0.13	-0.19	-0.21	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**.

The correlations between the outcome variables about life experiences and with the friendship explanatory variables are given in Table 38. *Rejection* at age 16 showed moderate association with *adverse events*. Age-16 *social skills*, and *social difficulties* (both based on teacher perceptions) were moderately strongly and negatively associated. There was no association between doing something praiseworthy and *social difficulties*, nor between *social skills* and *adverse events*, nor between the young person's indication of *rejection* and the teachers' perceptions of their *social skills* or *difficulties*.

Table 38: Correlation between the age-16 life experiences variables and with the age-14 friend, family, and life variables

	Rejection 16	Praise and achieve- ment 16	Adverse events 16	Social skills 16	Social difficulties 16
Praise and achievement 16	-0.14				
Adverse events 16	0.38*	-0.19*			
Social skills 16	–	0.15	–		
Social difficulties 16	–	–	0.16	-0.53	
Self-management 14	–	–	-0.23	0.47	-0.48
Self-efficacy 14	-0.10	–	-0.19	0.50	-0.38
Social skills peers and adults 14	-0.11	–	-0.14	0.50*	-0.47
Social skills peers 14	-0.13	–	-0.15	0.47	-0.50*
Family communicates well 16	–	0.24*	–	0.21	-0.13
Inclusive family 16	-0.12	0.19	-0.15	0.12	–
Supportive family 16	–	0.18	-0.14	–	–
Family pressure 16	0.31*	–	0.18*	-0.17	0.17
Solid friendships 16	-0.31*	0.24*	–	–	–
Risky behaviour 14	0.18	0.18	0.25*	-0.19	0.24
Rejection 14	0.31*	0.16*	0.17	–	–
Friends with risky behaviour 14	0.12	0.10	0.17	-0.15	0.19
Praise and achievement 14	–	0.44*	0.14*	0.10	–
Parent–child friction 14	0.12	–	0.18	-0.16	0.16
Close parent–child communication 14	–	–	–	–	–
Child self-confident 14	–	0.13	–	–	–
Child's self-efficacy 14	–	–	-0.16	0.26	-0.27
Child responsible 14	–	–	-0.13	0.28	-0.22

* 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

The models are presented in the order as listed in the tables above for ease of reference.

Solid friendships 16

From the correlations above we can see that solid friendships are most strongly associated with lack of friends with risky behaviour and having extending friendships.

The model presented in Table 39 accounted for 18 percent of the variability in solid friendships.

Table 39: Model to estimate solid friendships at 16 from age-14 variables and age-16 family variables

	Parameter estimate	Standard error	p-value	η_p^2 (%)	Partial correlation
Intercept	4.02	0.48	< 0.0001		
Solid friendships 14	0.30	0.05	< 0.0001	7.2	0.27
Inclusive family 16	0.23	0.04	< 0.0001	6.6	0.26
History of involvement in bullying 8–14			0.006	2.3	
–been involved once	0				
–involved at least twice	0.03	0.13	0.835		
–no involvement	0.40	0.14	0.003		

There was an association with having had solid friendships at age 14, coming from an inclusive family, and having had no involvement in bullying, either as bully or victim (although the association may be that having solid friendships is protective against involvement in bullying).

Friends with risky behaviour 16

From the correlations above we can see that having *friends with risky behaviour* is associated with the young person themselves having risky behaviour (both of these both at age 14 and 16), and relatively poor self-management skills at age 14.

The model presented in Table 40 accounted for 37 percent of the variability in *friends with risky behaviour*. Three of the young people were excluded from the model as their data exerted excessive leverage.

Table 40: Model to estimate friends with risky behaviour at 16 from age-14 variables and age-16 family variables

	Parameter estimate	Standard error	p-value	η_p^2 (%)	Partial correlation
Intercept	3.02	0.56	< 0.0001		
Friends with risky behaviour 14	0.40	0.04	< 0.0001	18.5	0.43
Family pressure 16	0.16	0.04	0.0004	3.3	0.18
Self-management 14	-0.18	0.05	0.008	2.9	-0.17
Attendance–acceptable	0		0.011	1.7	0.13
–poor	0.60	0.24	0.011		
Values 14–anchored/achieving	0		0.007	2.5	
–anchored	0.05	0.19	0.810		
–standing out	0.49	0.17	0.004		

Young people with *friends with risky behaviour* at age 14 were largely exhibiting similar behaviour at age 16, although some had changed their friends, or the friends had changed their behaviour.

Not having a family that puts pressure on the young person (or gives the young person something against which to rebel) and developing good self-management skills go some of the way to mitigate the chances of a young person making such choices about who they have as friends as can pose risks to their wellbeing.

Risky behaviour 16

Having *friends with risky behaviour* and taking risks yourself are strongly associated. Other associations with *risky behaviour* are *self-management* (or lack of it) and *family pressure*.

The model presented in Table 41 accounted for 43 percent of the variability in *risky behaviour*.

Table 41: Model to estimate risky behaviour at 16 from age-14 variables and age-16 family variables

	Parameter estimate	Standard error	p-value	η_p^2 (%)	Partial correlation
Intercept	2.48	0.43	< 0.0001		
Risky behaviour 14	0.50	0.05	< 0.0001	20.0	0.45
Family pressure 16	0.19	0.03	< 0.0001	7.6	0.28
Self-management 14	-0.16	0.04	0.0002	3.7	-0.19
Gender –male	0		0.009	1.8	0.13
–female	0.30	0.11	0.009		
Attendance– acceptable	0		0.002	2.6	0.16
–poor	0.57	0.18	0.002		
Student interests 14–sports player	0		0.041	2.2	
–computer games/nothing much	-0.17	0.15	0.259		
–reading, arts, sport	-0.11	0.14	0.443		
–creative interests	-0.49	0.17	0.005		

Not all students reporting *risky behaviour* at age 14 (or lack of it) gave similar reports at 16, but many who did report *risky behaviour* at 14 were still showing such behaviour two years later.

Young women were more likely to report *risky behaviour* than young men, as were those whose school attendance was categorised as poor by the school they attended (there was no statistically significant gender–attendance interaction). The students who reported having creative interests at age 14 were less likely to show *risky behaviour* at age 16 than sports players ($p = 0.005$), or those who like reading, arts, and sports ($p = 0.021$).

Extending friendships 16

Having extending friendships at age 16 is most strongly associated with having a family that communicates well, and the other family variables, and is weakly associated with having solid friendships and praise and achievement at age 14.

The model presented in Table 42 accounted for 25 percent of the variability in *extending friendships*. Three young people were excluded from the analysis as their data exerted excessive leverage.

Table 42: Model to estimate extending friendships at 16 from age-14 variables and age-16 family variables

	Parameter estimate	Standard error	p-value	η_p^2 (%)	Partial correlation
Intercept	3.75	0.45	< 0.0001		
Family communicates well 16	0.22	0.04	< 0.0001	9.0	0.30
Praise and achievement 14	0.15	0.04	< 0.0001	4.7	0.22
Solid friendships 14	0.15	0.05	0.004	2.2	0.15
Gender –male	0		0.0002	3.8	0.19
–female	0.39	0.10	0.0002		
Attendance– excellent	0		0.011	4.3	
–very good	-0.13	0.14	0.369		
–good	-0.30	0.14	0.038		
–fair	-0.54	0.16	0.0009		
–poor	0.05	0.18	0.782		
–absences for health reasons	-0.50	0.31	0.112		
–absences for other reasons	0.22	0.50	0.658		

Having *extending friendships* is associated with a family that communicates well, and with gaining recognition for achievements. It is more common in females, and there are indications that some of the young people who have only fair attendance may not have good friends at school. This is confirmed by responses to the item “School is a place where I have good friends”: 70 percent of those whose attendance was fair responded always/almost always, compared with 76 and 77 percent of those whose attendance was better or worse (for any reason), respectively (these differences alone are not statistically significant, but are consistent with the pattern in the model).

Rejection 16

Rejection is moderately associated with experiencing adverse events at age 16, feeling *family pressure*, not having *solid friendships*, and experiencing *rejection* at age 14.

The model presented in Table 43 accounted for 31 percent of the variability in *rejection* at age 16. Two young people were excluded from the analysis as their data exerted excessive leverage.

Table 43: Model to estimate rejection at 16 from age-14 variables and age-16 family variables

	Parameter estimate	Standard error	p-value	η_p^2 (%)	Partial correlation
Intercept	2.26	0.36	< 0.0001		
Adverse events 16	0.30	0.05	< 0.0001	8.8	0.30
Solid friendships 16	-0.21	0.03	< 0.0001	8.4	-0.29
Rejection 14	0.17	0.04	< 0.0001	5.3	0.23
Family pressure 16	0.11	0.03	< 0.0001	3.9	0.20
Values 16–satisfying life	0		0.006	2.3	
–aspirational	0.24	0.11	0.028		
–standing out	-0.11	0.09	0.229		

Students who at age 16 valued a satisfying life or “standing out” had lower *rejection* scores than those with aspirational values. This may be because the aspirations were to things the young people and their families did not currently have, or their peers did not have, leading to rejection of some of these values by their peers.

Praise and achievement 16

Praise and achievement at 16 was most strongly associated with similar success at age 14.

The model presented in Table 44 accounted for 32 percent of the variability in praise and achievement at age 16. One young person was excluded from the analysis as their data exerted excessive leverage.

Table 44: Model to estimate praise and achievement at 16 from age-14 variables and age-16 family variables

	Parameter estimate	Standard error	p-value	η_p^2 (%)	Partial correlation
Intercept	0.13	0.56	0.82		
Praise and achievement 14	0.34	0.04	< 0.0001	13.4	0.37
Solid friendships 16	0.22	0.05	< 0.0001	4.5	0.21
Adverse events 16	-0.27	0.06	< 0.0001	4.0	-0.20
Family communicates well 16	0.18	0.04	< 0.0001	3.9	0.20
Rejection 14	0.14	0.05	0.005	1.9	0.14
History of enjoyment of school 8–14			0.003	3.2	
–enthusiastic	0				
–fairly enthusiastic	-0.38	0.15	0.009		
–mixed	0.23	0.15	0.141		
–unhappy at least once	0.06	0.21	0.754		
Reading pattern 8–14–enjoy reading	0		0.026	2.1	
–mainly enjoy reading	-0.35	0.14	0.017		
–mixed responses	-0.40	0.15	0.007		
–repeated lack of enjoyment	-0.30	0.25	0.228		

Students who at age 16 received praise and achieved things were likely to have had similar success at age 14. They were likely to have *solid friendships* and a *family that communicates well*, and not to have experienced *adverse events* and *rejection*. Between the ages of 8 and 14 they were likely to have enjoyed reading, and to have been enthusiastic about school.

Adverse events 16

Experiencing *adverse events* at 16 was not strongly associated with other variables, probably because most of these events are not predictable (death of a friend, an accident or injury, moving, family break-up).

The model presented in Table 45 accounted for 16 percent of the variability in adverse events at age 16. Four young people were excluded from the analysis as their data exerted excessive leverage.

Table 45: Model to estimate adverse events at 16 from age-14 variables and age-16 family variables

	Parameter estimate	Standard error	p-value	η_p^2 (%)	Partial correlation
Intercept	0.52	0.20	0.008		
Praise and achievement 14	-0.09	0.03	0.002	2.6	-0.16
Family pressure 16	0.08	0.02	0.001	2.7	0.16
Risky behaviour 14	0.09	0.04	0.015	1.6	0.12
Attendance 16–excellent	0		< 0.0001	8.3	
–very good	0.15	0.11	0.186		
–good	0.20	0.11	0.079		
–fair	0.27	0.13	0.033		
–poor	0.71	0.14	< 0.0001		
–absence due to illness	0.77	0.25	0.002		
–absence for other reasons	-0.51	0.45	0.260		

Those who experienced *adverse events* were less likely to also have done something resulting in *praise and achievement* at age 14, but were more likely to have *family pressure*, or have shown *risky behaviour* at age 14. There is a strong association between *adverse events* and *school attendance*, with those who had a fair or poor attendance record, particularly if the absences were related to illness, being more likely to have experienced adverse events. In the case of ill-health, this is not surprising, as poor health counted as one of the possible contributors to the adverse events score.

Social skills 16

Social skills is one of the attitudinal competencies, and it is most strongly associated with the age-14 attitudinal competencies. The perceptions of the teachers across the two years between rounds of data collection are more strongly associated than the perceptions of the young people or parents. Or possibly, the young people the teachers were judging appeared to be different from the young people's perceptions of themselves, or how they behaved at home. Another possibility is that the frames of reference of the teachers and family members were very different.

The model presented in Table 46 accounted for 32 percent of the variability in social skills at age 16.

Table 46: Model to estimate social skills at 16 from age-14 variables and age-16 family variables

	Parameter estimate	Standard error	p-value	η_p^2 (%)	Partial correlation
Intercept	2.88	0.51	< 0.0001		
Social skills with peers and adults 14	0.50	0.06	< 0.0001	15.3	0.39
Attendance 16–excellent	0		0.005	4.8	
–very good	0.05	0.17	0.756		
–good	0.00	0.17	0.994		
–fair	-0.44	0.19	0.021		
–poor	-0.56	0.21	0.009		
–absence due to illness	0.58	0.38	0.129		
–absence for other reasons	0.39	0.58	0.501		
Reading pattern 8–14–enjoy reading	0		0.0009	4.3	
–mainly enjoy reading	-0.24	0.14	0.092		
–mixed responses	-0.62	0.15	< 0.0001		
–repeated lack of enjoyment	-0.56	0.27	0.042		
Values 16–satisfying life	0		0.001	3.4	
–aspirational	0.30	0.15	0.044		
–standing out	-0.28	0.14	0.046		

Young people who were perceived to have good social skills by their teachers at age 14 were also likely to be similarly perceived at age 16. Teachers tended to perceive those whose attendance was fair or poor as having lesser *social skills* (but not if the absences were due to illness or other reasons). Young people who did not really enjoy reading between the ages of 8 and 14 were likely to have lower scores for *social skills*, as were those whose values were “standing out”. Those with aspirational values were likely to have higher scores for *social skills*.

Social difficulties 16

Social difficulties is another of the attitudinal competencies, and is most strongly associated with the age-14 attitudinal competencies.

The model presented in Table 47 accounted for 30 percent of the variability in social difficulties at age 16.

Table 47: Model to estimate social difficulties at 16 from age-14 variables and age-16 family variables

	Parameter estimate	Standard error	p-value	η_p^2 (%)	Partial correlation
Intercept	11.02	0.76	0.166		
Social skills with peers 14	-0.75	0.09	< 0.0001	15.5	-0.39
Attendance 16–excellent	0		0.004	5.0	
–very good	-0.02	0.26	0.933		
–good	-0.30	0.27	0.263		
–fair	0.96	0.30	0.001		
–poor	0.46	0.34	0.177		
–absence due to illness	-0.18	0.60	0.758		
–absence for other reasons	0.72	0.92	0.432		
School decile pattern 8–14–mainly 1–2	0		0.005	3.9	
–unknown	-1.07	0.50	0.031		
–mainly 3–8	-0.81	0.40	0.043		
–mainly 9–10/private	-1.30	0.40	0.001		
–mixed	-0.59	0.44	0.177		
Values 16–satisfying life	0		0.013	2.3	
–aspirational	0.21	0.24	0.374		
–standing out	0.64	0.22	0.003		
Gender–male	0		0.041	1.1	-0.11
–female	-0.39	0.19	0.041		

Young people who were perceived to have poorer *social skills* by their teachers at age 14 were likely to be perceived as having *social difficulties* at age 16. Teachers tended to perceive those whose attendance was fair or poor as having more *social difficulties* (but not if the absences were due to illness or other reasons). Young people whose values were “standing out” were more likely to be perceived as having *social difficulties* than those who wanted a satisfying life. Young females were less likely to have *social difficulties* than young males. Young people who had mainly attended schools that were decile 3 or higher were less likely to be judged to have *social difficulties*.

The results for *solid friendships*, *social skills*, and *social difficulties* all suggest that some of those with fair attendance may not attend school for reasons of alienation or isolation—at least because of a lack of good friends.

