

The Role of Information, Advice and Guidance in Young People's Education and Employment Choices

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This research report was written before the new UK Government took office on 11 May 2010. As a result the content may not reflect current Government policy and may make reference to the Department for Children, Schools and Families (DCSF) which has now been replaced by the Department for Education (DFE).

The views expressed in this report are the authors' and do not necessarily reflect those of the Department for Education.

Contents

Acknowledgements	3
Executive summary	4
1. Introduction	11
2. Data and analysis methods	15
3. What are the sources and who are the receivers of CE/IAG?	25
4. Effects of CE/IAG on young people's opinions while still at school	41
5. Effects of CE/IAG on young people's post-16 outcomes	59
6. Is CE/IAG effective for young people at risk of poor outcomes?	66
7. Discussion and conclusions	72
Bibliography	81
Appendix A: Survey questions used to measure CE/IAG	84
Appendix B: Description of control and outcomes variables	87
Appendix C: Comparability of CE/IAG questions	93
Appendix D: Methods of estimating the CE/IAG effect	95
Appendix E: Determinants of CE/IAG	97
Appendix F: CE/IAG effects on young people's opinions	102

Acknowledgements

This report is the result of a project commissioned by the then Department for Children, Schools and Families (now the Department for Education, the DfE). We would like to thank the project manager (Jude Belsham), Helen Wood and participants at the DfE presentation for their valuable comments and advice.

We thank Marta Favara of ISER for her useful help in deriving the variables for this work. We are also grateful to the Department for Education for providing data from wave 5 of the Longitudinal Survey of Young People in England and linked data from National Pupil Data set.

Executive summary

Summary: the role of information, advice and guidance in young people's education and employment choices

Introduction

Careers Education and Information, Advice and Guidance (CE/IAG) provided to students before the end of compulsory school may be essential to allow them to make suitable educational and employment decisions and to minimise the potential costs associated with uninformed and unsuccessful choices. Good CE/IAG can be thought of as aiming to meet two objectives. The first aim is to increase the stock of highly qualified and highly skilled people in the British workforce. The second aim is to encourage disadvantaged young people to aim high.

Young people can obtain CE/IAG from three main sources: from their family, from their school, or from the specialised Connexions service. This paper reports the findings of research designed to estimate how much difference the availability of CE/IAG makes to young people's attitudes to school and expectations for post-16 activities, which we call opinions, and to the actual decisions they take after reaching the minimum school-leaving age.

Data and analysis methods

The research analyses the Longitudinal Study of Young People in England (LSYPE). A sample of nearly 16,000 young people was interviewed in 2004, when they were in school year 9 (aged 13/14). They have been followed up each year since then, and the research is based on the sequence of interviews between years 9 and 13 (aged 17/18). The longitudinal design (interviewing the same young people every year) allows us to estimate the effects of inputs from year 9 on outcomes up to year 13.

The survey asked questions in years 9, 10 and 11 about CE/IAG received from each of the three main sources: family, teachers and Connexions. The analysis mainly compares outcomes between young people who reported regular advice from each source and those who reported less. Alternative ways of defining regular advice

Executive summary

(depending on the particular sequence of questions asked in each year) have been tested, and the overall conclusions are not sensitive to the precise definition used.

The outcomes of CE/IAG received in years 9 to 11 can be thought of as potentially occurring in two stages – short-term effects on young people’s opinions while still in compulsory education (up to year 11); and longer-term effects on their actual activities after 16 (years 12 and 13). The analytical approach is to compare these outcomes between young people with more or less input of CE/IAG from each source. It is important to allow for the possibility that the young people who received CE/IAG were the types of young people who would have had ‘better’ outcomes anyway. It is also possible that users of CE/IAG could be the types of young people who would have had poorer outcomes anyway, and that might particularly be so for young people who asked Connexions for advice. Two analytical techniques – ‘regression’ and ‘propensity score matching’ – have been used to estimate the net effect of CE/IAG after controlling for the set of other factors (eg family background, previous attainments) potentially affecting young people’s outcomes.

Although clear relationships are identified between the provision of some kinds of CE/IAG and young people’s pre-16 opinions, a conclusion of the research is that there are no observable effects on post-16 decisions. The weakness of the measured effects needs to be interpreted in the light of three considerations:

- Whether CE/IAG is expected to promote ‘better’ outcomes (such as further education) and discourage ‘worse’ outcomes (such as NEET), over and above tailoring advice to reflect individuals’ particular aptitudes and preferences?
- How accurate and consistent are measures of CE/IAG inputs derived from survey questions?
- What interpretation should be put on analysis which shows no significant difference in outcomes between young people who did and did not report receipt of CE/IAG?

The full text of this report inevitably includes some technical detail, designed to assess the accuracy of the estimated effects of CE/IAG on young people’s opinions and decisions. This summary is designed to record the conclusions of the analysis, with minimal technical discussion. Many readers will find that the summary provides as much information as they need, without having to consult the full text.

What are the sources and who are the receivers of CE/IAG?

Most young people said that they had talked to their family about future studies in years 9, 10 and 11. The majority had also talked about this to school teachers in each year, though less frequently in year 11. A minority had received CE/IAG from Connexions in years 9 and 10, but this source was more important in year 11.

The answers to the survey questions about CE/IAG received in years 9 and 10 produced some very clear profiles. There was a strong tendency for pupils who had used one source of CE/IAG to have used the other two. There was a strong tendency for those who reported such discussion in year 9 also to report it in year 10. Those who took part differed in measurable ways from those who did not, with some evidence that the penetration of CE/IAG from Connexions was slightly greater among young people who might have been expected to have less successful academic trajectories.¹

However, the analysis suggested that CE/IAG reported in year 11, though not very much more common than in years 9 and 10, did not exhibit such a clear profile. This may be interpreted to mean that CE/IAG (from all sources) is more widespread (ie less selectively available) during the crucial final year of compulsory schooling

Young people with poor financial resources or living in a disadvantaged neighbourhood do not seem to receive either more or less CE/IAG than their better-off peers. On the other hand, characteristics such as special educational needs, KS2 educational attainment, gender, ethnicity, parental attitudes and family socio-economic position, and school characteristics help in explaining the probability of receiving CE/IAG.

Effects of CE/IAG on young people's opinions while still at school

The first stage of the analysis of outcomes looked at the influence of CE/IAG received in years 9 to 11 on young people's opinions expressed over roughly the same period. Both the inputs (CE/IAG) and the outcomes (opinions) are measured before the point at which young people actually decide what to do in year 12.

The young people's opinions we considered are:

- attitudes to school,

¹ We are considering here only CE/IAG from Connexions received on future studies and career.

Executive summary

- intention to stay in education, to take a training place or apprenticeship, to work,
- not knowing what they will do after year 11.

There are some clear signs that talking to either family members, or to school teachers, about future studies in the course of years 9 or 10 has some positive effects on attitudes to school, and the intention to stay in education and reduces pupils' probability of not knowing what they would do after year 11.

Table 1 illustrates these findings, using as an example the effects of CE/IAG received from school teachers on plans to remain in full-time education. When asked about their plans at the end of year 9, the young people who said they had spoken to teachers in that year about options for future study were 3 percentage points more likely to say that they planned to stay on after year 11 than otherwise similar young people who had not spoken to teachers about this. The stars in the table indicate that we can be quite confident that this is a true difference, not arising by chance. Teachers' CE/IAG provided in year 10 had a slightly greater effect on plans recorded at the end of year 10. But the table suggests that CE/IAG received from teachers at any stage made no difference to expectations reported at the end of year 11 (ie just before the final staying on decision was due). In other words, Table 1 suggests that CE/IAG in year 9 and 10 has short-term effects (i.e. effects on pupils' outcomes measured in year 9 and 10) but no long-term effects (i.e. effects on outcomes observed in year 11), whereas CE/IAG in year 11 does not have a short term effect. This seems to hint that early CE/IAG is more effective than late CE/IAG at least on short-term outcomes.

Table 1 Net effects of CE/IAG from school teachers on planning to stay in full-time education

	CE/IAG received from school teachers in			
	(year 9)	(year 10)	(year 11)	
year9	0.030	**		
year10	0.025	**	0.046	***
year11	0.007		0.014	-0.009

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Pupils who spoke to school teachers about the possibility of training or apprenticeships were rather less likely to expect to remain in full-time education, but similarly more likely to intend to get training places, than those who had not had such discussions.

CE/IAG (about either future studies or training/apprenticeships) from Connexions does not seem to have any measurable effect on young people’s opinions.

There is no measurable effect on opinions of CE/IAG received in year 11. This could suggest that early provision of CE/IAG about future studies and training/apprenticeships is more effective.

Effects of CE/IAG on young people’s post-16 outcomes

If talking to family and or school teachers about future study had a positive effect on young people’s attitudes to school and on their intentions to remain in education, it might have been expected that this impact on their pre-16 opinions might flow on to their post 16 decisions. Arguably it is the ultimate decisions, rather than the initial opinions, which matter more.

But there was very little evidence that CE/IAG about future studies (from any source) made any substantial difference to young people’s pattern of activities after 16.

Some young people had spoken to either teachers or Connexions about training or apprenticeships. Given that these consultations are specifically focused on training and apprenticeship, it is perhaps not surprising that those who had discussed this with teachers were less likely to remain in education. They were more likely to take up

either training places, or full time work; with no increase in the risk of ending up without any worthwhile activity (NEET).

Is CE/IAG effective for young people at risk of poor outcomes?

It can be argued that young people with poor expectations of educational success are most in need of effective CE/IAG services. We have tested this issue by focussing on two groups of potentially disadvantaged young people – those with low attainments at key stage 2, and those reported to have special educational needs.

The LSYPE confirmed that the two sub-groups identified do indeed have poor outcomes in terms of attitudes to school, the risk of NEET, and unstable post-16 careers.

They received slightly less CE/IAG about future study from family and school teachers (than their more advantaged counterparts); they received slightly more CE/IAG about training or apprenticeships.

The analysis of disadvantaged groups indicated that some of the CE/IAG effects may have been a little larger for the subsamples of disadvantaged children than for the whole sample of young people, but (given that a much smaller sample is being analysed) remained insignificant in the statistical sense. There is no clear evidence that CE/IAG is especially effective for those in most need of it.

Conclusions

The main conclusions of the analysis are:

1. Educational advice from home and school impacts on young people's opinions while still at school.
2. But it is very difficult to detect any lasting effect on the choices they actually make after reaching the minimum school leaving age.
3. As contact with young people is minimal and only on referral, advice from Connexions has a negligible impact on both short-term opinions and on eventual choices.

Executive summary

4. Advice about training opportunities seems to have a positive influence on participation in work and training, among those who expect to leave school at 16.
5. There is some evidence that CE/IAG provision is greater, and that the effects are stronger, for low achievers, but the differences are not large.

1. Introduction

Careers education, information, advice and guidance (CE/IAG) provided to students before the end of compulsory schooling may be essential to allow them to make suitable educational and career decisions and to minimize the potential costs associated with uninformed and unsuccessful choices. Morris (2004) finds for example that students with better skills in careers exploration (using computers, paper sources or speaking with people), and with more factual knowledge about their educational opportunities, are less likely to switch or drop-out from post-16 courses. Young people from poor family backgrounds or with weak educational attainments tend to be less well-informed about their future opportunities and are more likely to take a quick but not well-informed decision about their future education and career plan (see Macrae et al 1996). Providing good quality CE/IAG to these students may help them to make better choices, leading to an improvement in their skills and ultimately to a decrease in their risk of unemployment.

CE/IAG is broadly defined and covers the full range of issues which might impact on a young person's life – ranging from careers and learning to lifestyle issues. It comprises:

- “Information: accurate, up-to-date, facts and data about: personal and lifestyle issues, learning and career opportunities, progression routes and choices; where to find help and advice; and how to access it.
- Advice: activities that help young people to gather understand and interpret information and apply it to their own situation.
- Guidance: impartial guidance and specialist support to help young people to understand themselves and their needs, confront barriers, resolve conflicts, develop new perspectives and make progress.” (DCSF 2009b)

The Milburn panel on fair access to the professions made a number of recommendations relevant to the supply of CE/IAG (Cabinet Office 2009). At the same time, the (then) DCSF and other government departments released a number of CE/IAG related publications, one of which (DCSF 2009b) describes the vision for CE/IAG as being “multi-dimensional, the product of many different inputs, opportunities and experience over a long period of time; CE/IAG must be a process, not an event. This means that CE/IAG needs to be thought about and organised in ways that seek consciously to build young people's knowledge and understanding progressively.”

Introduction

The objective of good quality CE/IAG is to help young people to choose their own best options, rather than to push or suggest what they should do. After speaking with an advisor, a young person might decide to take a gap year and postpone his/her decision about future studies, and this could be considered a good outcome. A teacher or advisor providing CE/IAG to young people should not constrain what their best choice for the future might be. Nevertheless, it seems rational to think that CE/IAG should help, at least in the long term, to increase the percentage of young people in education or training and to reduce the percentage who do not know what to do.

Good CE/IAG can be thought of as aiming to meet two objectives. One objective is concerned with the overall volume of quality output from the education system. The aim is to increase the stock of highly qualified and highly skilled people in the British workforce – it has been pointed out, for example, that 40 per cent jobs will require higher educational qualifications by 2020 (DCSF 2009a). The other objective is concerned with the equitable *distribution* of education and training between social groups. The aim is to encourage disadvantaged young people to aim high – responding for example to the fact that while 56 per cent of the children of professional workers hope to have a professional job themselves, only 13 per cent of the children of unskilled workers have the same ambition (DCSF 2009a). Up to a point, these objectives are in harmony with each other – a higher educational qualification for a disadvantaged young person hits both targets. But in principle there may be tension between them – would a degree for the child of a professional worker take precedence over successful apprenticeships for a disadvantaged child? Both outputs and equity require consideration.

For the past 40 years the ‘minimum school leaving age’ has been 16 – that is, young people are required to remain in education until just after their 16th birthday, and can then either remain in education, or get a job (with or without a training component) or do nothing. In practice, the number of young people remaining in the education system at age 16 has steadily risen, to reach about 80 per cent in 2008. From 2013 young people will be required either to participate in education or training until the age of 17; and from 2015 the minimum age will be 18. Raising the participation age is expected to lead to even greater, and more complex, roles for CE/IAG, as advisers strive to find alternative educational or training courses suitable for young people.

The wide range of sources of CE/IAG for young people

Introduction

includes friends, employers, the internet or other media. We focus here on CE/IAG which can be obtained from the three main sources of Connexions, teachers and family. The most formal service is called Connexions and provides IAG not only on careers and education but also on a wider range of domains (social welfare, housing, drug and alcohol use, etc.) . It was established in 2001 with the aim of providing a comprehensive service to meet young people's needs for information, advice and guidance. It aims to provide impartial CE/IAG, together with access to personal-development opportunities to help remove barriers to learning and progression and ensure young people make a smooth transition to adulthood and working life. The service has recently been through a process of transition. Since April 2008 the funding that originally went directly to 47 Connexions Partnerships now goes to all 150 Local authorities, who are now responsible for delivery.² The Connexions Service has provided universal CE/IAG to all students, but it has also been more specifically targeted on young people at risk of poor post-16 outcomes.

Schools also provide CE/IAG to their pupils. This can cover a range of activities from group sessions to individual tutorials, provided either by careers co-ordinators (including the possibility that Connexions staff should be invited into the school), or class teachers.

The third main source of information and advice available to young people is their own family. Parents are the people who know the child best and speak to them most often, but will typically have a much more limited stock of information about options and their consequences. Parental advice in the form of informal chats about future studies and career is likely to occur over a period, whereas more formal advice available in schools and from Connexions is likely to be supplied in more intensive and more clearly defined sessions.

This paper reports the findings of research designed to estimate how much difference the availability of CE/IAG (obtained from these three sources) makes to young people's perceptions of school and of the options available to them; and to the actual decisions they make after reaching the minimum school leaving age. The research analyses the Longitudinal Survey of Young People in England (LSYPE) which, as explained in more detail in the next Chapter has followed a sample of school pupils since Year 9. The

²'Connexions' from DCSF website

<http://www.dcsf.gov.uk/everychildmatters/Youth/youthmatters/connexions/connexions/>

Introduction

research approach is to compare the outcomes up to year 13 for those who did, and did not, say that they had had CE/IAG from various sources, in each of years 9, 10 and 11.

The next chapter describes the LSYPE, the main survey questions used for this analysis, and the analytical approach. That is followed by an outline description of the amount of CE/IAG from different sources, as reported by young people. The key analysis of the effects of CE/IAG on outcomes is then presented in three stages. We consider, first, whether CE/IAG affects pupils' opinions (their attitudes to school and their expectations for post-16 activities) during the remainder of the period prior to reaching the minimum school leaving age. Second, we show whether young people who have received CE/IAG differ from those who have not in their actual choice of post-16 activities. Third, we review these two issues from a perspective focussing on young people who can be expected to have relatively disadvantaged educational careers. The final chapter reviews the findings and discusses the implications.

2. Data and analysis methods

In this section we give some details of the data source, and of the questions asked in the survey that are used in the analysis. Furthermore we discuss the analytical methods used to identify the true effect of CE/IAG on young people's outcomes.

2.1 The LSYPE

We use data from the Longitudinal Survey of Young People in England (LSYPE). The LSYPE has been following a group of young people from 2004 when they were 13-14 years old (school year 9). The data used for this report takes us up to two years after they took their GCSEs (year 13).³ Therefore we can analyse their *intentions* to remain in education or to look for work (expressed before the event in years 9 to 11) and their *actual destinations* recorded after the event in years 12 and 13. This is widely recognised as a crucial period of adolescence, with major implications for life-course trajectories.

In the following we provide a summary description of the LSYPE provided by the Department's documentation. More details are available in the LSYPE User Guide (2009).

Overview

The Longitudinal Study of Young People in England (LSYPE) is an innovative panel survey of young people which brings together data from a number of different sources, including both annual interviews with young people and their parents, and administrative sources.

Its key role is to identify, and enable analysis and understanding of, the key factors affecting young people's progress in transition from the later years of compulsory

³ At the moment the LSYPE has collected data for the first 5 waves following young people up to 17/18 and data for the first 4 waves are publicly released through the UK Data Archive at <http://www.esds.ac.uk/findingData/lstypeTitles.asp>

We obtained Data for the fifth wave directly from the DCSF.

Data and analysis methods

education, through any subsequent education or training, to entry into the labour market or other outcomes.

Beginning in spring 2004, when the young people sampled were in Year 9 (aged 13-14), sample members and their parents have been interviewed annually. The first four waves used face to face interviewing. Data collected through interview are supplemented by linkage to administrative databases, such as the National Pupil Database and Individual Learner Record.

Sample design

The original sample drawn for Wave 1 of the study was just over 21,000. The target population sampled was young people in Year 9 (or equivalent) in all schools in England in February 2004 and born between 1st September 1989 and 31st August 1990.

LSYPE used a two stage sample. At the first stage a sample of 892 schools was drawn with probability proportional to size. The selected schools were then approached for access to their pupil rolls. 647 (73%) co-operated with the study. At the second stage a sample of pupils in Y9 was drawn from the school rolls. Sample boosts were designed to increase the number of young people in the sample who were either deprived or members of minority ethnic groups.

The issued sample at Wave 1 was 21,234.

Data collection

The LSYPE involves annual waves of interviewing. At Waves 1 and 2 interviewers were asked to interview the young person sampled and both parents (where present) or those in loco parentis. At Waves 3 and 4 only one parent was interviewed as well as the young people.

Survey data have been linked to various administrative data sources such as the National Pupil Database and School Census details.

Response

Wave 1 achieved 15770 households (74%), In 10% of cases this was a partial household, in the large majority of these cases this was a missing second parent interview.

Data and analysis methods

Wave 2 issued 15678 cases and achieved interviews at 13539 (86%), again there were 10% partial interviews and again this was mainly missing second parent interviews. Less than 3% of cases have second parents missing at both waves. No major response biases have yet been found.

Wave 3 had 13,520 cases to be issued to field and achieved a response rate of around 92% (12435). Wave 4 achieved 92% for the main sample and 60% for the boost sample.

Overview of data

Table 1 summarises the structure of the LSYPE data. The first wave of the survey took place in 2004, and interviewed a sample of 15,770 pupils in year 9, aged 13/14. Wave 2, in 2005, traced the same pupils, now in year 10 and aged 14/15, and successfully interviewed 13,539 of them. And so on.

In the following text, we refer to the LSYPE 'wave' (1-5) when referring directly to the survey itself (eg the questions asked, the sample sizes achieved). We refer to the school 'year' (9-13) when referring to the experiences reported by sample members at each stage of their teenage career.

The sample sizes shown in the table record the number of pupils interviewed in each year. When analysis is confined to questions asked in a single wave (eg comparing attitudes reported in wave 2 with CE/IAG reported in wave 2), then the number of pupils interviewed in that wave is the best guide to the size of the sample. But when analysis takes account of several waves (eg comparing destinations in wave 5 with CE/IAG reported in wave 1), then the (smaller) number of pupils interviewed on the later wave is the best guide to the effective sample size.

Table 1. Summary of LSYPE data analysed

Wave	Date	Year	Age	Sample size
1	2004	9	13/14	15,770
2	2005	10	14/15	13,539
3	2006	11	15/16	12,439
4	2007	12	16/17	11,449
5	2008	13	17/18	10,177

The sample size is given by the number of young people who returned their questionnaire, though not all of these cases will also have included a full suite of data, including parental interviews.

2.2 *Measuring information advice and guidance*

LSYPE contains several questions on CE/IAG provided by Connexions, school, and family, but these questions are not always the same and therefore not comparable across years (waves). (See Appendix A for the questions used in the LSYPE in each of waves 1, 2 and 3, corresponding to years 9, 10 and 11) For this reason we focus on a subset of CE/IAG measures for which we have fairly comparable information across years, although based on different LSYPE questions.

The three main variables are concerned with whether the pupil had discussed plans for studying in the future, with three potential sources of CE/IAG

- *Connexions:*
Talking to Connexions *Advisors* either in person, on the phone or as part of a group (years 9-11);
- *School*
Talking to teachers (including career advisors at school) about plans for studying in the future (years 9-11);

- *Family*

Talking to family members about plans for studying in the future (years 9-11);

In interpreting the data about CE/IAG from Connexions there are two issues to be taken into account. First, Connexions provides advice to young people on a wide range of 'lifestyle' issues, including sex, alcohol and drug abuse, housing and so on. It is possible that respondents in the survey did not make a clear distinction between contacts with the service about educational and career opportunities, and these other topics. If so, any effects of educational advice might have been blurred. Second, the Connexions CE/IAG reported in the LSYPE for years 9, 10 and 11 refer to 2004, 2005 and 2006 – that is while Connexions was still a national service delivered through 47 partnership agencies. It is possible that there has been a change in Connexions CE/IAG delivery since the responsibility was reallocated to 150 local authorities.

We consider three variables to identify young people who have received *CE/IAG about plans for future studies* in year 9, 10 and 11 from three main sources

- Connexions advisors,
- school teachers⁴,
- family members.

We also consider another two variables to identify young people who have received *CE/IAG about getting a training place or apprenticeship*. These CE/IAG variables can be derived separately for years 10 and 11 (but not year 9) and for two types of CE/IAG source: school teachers and Connexions people (advisors or someone else from Connexions).

The variables are based on different questions for different waves. In particular pupils were asked to report whether they talked about “plans for studying in the future” in year 9, or about “what they might do after they finish Year 11” in year 10, or about “whether or not to stay on in full time education” in year 11. In years 9 and 10 pupils were asked to report on a 5-point scale (from “not at all”, 1, to “a lot”, 5) how often they talked with

⁴ In year 9 and 10 our measure of CE/IAG from school teachers is based on a LSYPE question asking children to report if they talked with teachers within or outside lessons, whereas in year 11 it is based on a question asking children if they talked with career advisors, career teachers and other school teachers.

Data and analysis methods

different people (Connexions, teachers and family members) about their future studies; but in year 11 they were only asked to report whether they talked about whether to stay on full time education with different people using two multiple-option questions.

Therefore, the only information comparable across the three years is whether pupils had talked at all about their plan for future studies (or about whether to stay on full time education, or what to do after year 11).

The fact that the questions are not comparable across years could bias some of the results we present later. In Appendix C we give more details on this possible issue.

LSYPE collected some more detailed information about the CE/IAG received - in particular its frequency, which is reported in years 9 and 10; and its perceived usefulness, which is covered in year 9 only. Frequency is measured on a 5-point scale (not at all, not very often, a little, quite a lot, a lot). Usefulness is also reported on a 5-point scale (not at all useful, not very useful, a little bit useful, quite useful, and very useful). These questions are subjective evaluations which could be difficult to compare across pupils and across sources of CE/IAG. Nevertheless, they can still be useful sources of information to study CE/IAG. For this reason we use this more detailed information for sensitivity checks (in Section 4.3) and show that the summary measures used in the main analysis provide a robust set of conclusions.

In an ideal research world, we would have accurate and objective data about the inputs – recording each episode of CE/IAG provided by the three main sources – family members, teachers (and other school staff) and Connexions. In practice, the survey relies on answers given by young people in their interview towards the end of each school year. This gives rise to three potential difficulties

- It is difficult to assess the frequency, duration or intensity of advice sessions, and we mainly distinguish young people who had any CE/IAG from a particular source in a particular year, from those who had none.
- The questions asked changed from wave to wave of the survey, and this made it difficult to adopt comparable definitions across the school years under consideration.
- Answers in an end-of-year survey interview may be influenced by the young person's subjective view. This subjectivity may be much more relevant to their perception of informal events (such as a chat with dad over the lunch table or a

word with teacher in the corridor), than to their recall of formal events (such as a one-to-one session with a school careers specialist or a Connexions adviser).

2.3 Measuring young people's outcomes

We consider young people's outcomes before the end of compulsory schooling (short-term intermediate outcomes called opinions) and after compulsory school at 16-17 and at 17-18 (post-16 outcomes). In particular we consider the following

Short term outcomes (opinions)

- attitudes to school (years 9, 10 and 11),
- expectation about staying in education, going to work or beginning a training place or apprenticeship after year 11 (years 9, 10 and 11),

Post-16 outcomes

- Inconsistency between expected and actual post-16 destinations
- Full time education, training or apprenticeship, work and NEET at 16/17 (year 12) and 17/18 (year 13),
- Number of months spent in full-time education; in work; in training or apprenticeship, and in NEET over 21 months from September of year 12 (2006) to May of year 13 (2008),
- Stability of post-16 main activity.

Attitudes to school is a score taking a value from 0 to 48, given by the sum of 12 items each scored 0 to 4. These items are answers to questions on how the young person feels about school (for example whether he/she is happy at school and whether he/she likes being at school). High scores correspond to more positive attitudes.

More details on the definitions of the remaining outcome variables are provided in Chapters 4 and 5 and in Appendix B.

2.4 Estimating the effects of CE/IAG on young people's outcomes

Initially, we are looking for evidence that pupils who received CE/IAG from various sources had better outcomes than those who did not. 'Better' is generally interpreted to mean more positive attitudes to school, an intention to remain in education or training after the end of compulsory schooling, a subsequent lower probability of becoming NEET (not in education, employment or training) after 16. Straightforward differences of average outcomes between young people who reported receiving CE/IAG and those who do not are referred to as 'gross' effects in the following sections. These gross effects could be spurious because a gap in the average outcomes between these two groups of young people could be related to differences in their backgrounds. To take account of this problem we also estimate the net effects which are computed by controlling for differences in background characteristics (a detailed list of these characteristics is provided below)

In other words, it is important also to allow for the possibility that the young people who received CE/IAG were the types of young people who would have had 'better' outcomes anyway, with or without CE/IAG. Research has identified family background and parental expectations, school characteristics and young people's own attitudes and aspirations as key influences on post-16 decisions (Chowdry et al. A. 2009). Young people who react negatively to school are much more likely to leave at 16, possibly because disengagement from education limits the set of future options they consider (Foskett and Hemsley Brown, 2001). CE/IAG can improve educational aspirations and school attitudes, raise educational attainments, increase post-16 participation, and lead to more well-informed educational and career choices and to fewer changes and drop-outs from courses (Morris and Rutt 2006).

The analysis considers the following set of potential determinants, first of receiving CE/IAG, and then of young people's outcomes:

- child's prior educational attainments (KS2)
- young person has special educational needs (SEN).
- demographic characteristics (gender, number of siblings, lone parent family, ethnic group, English as main language)

Data and analysis methods

- home resources (housing tenure: (i) owned, (ii) rented from council or housing association, (iii) rented privately; household income (expressed as log equivalised income) financial difficulties; having a computer at home, having internet connection at home, private tuition, being eligible for free school meals (FSM))
- parent's role (parents' attitudes to school, school involvement, discipline at home, parenting style positive towards family togetherness⁵, parents' educational aspiration and expectation for their child)
- family background characteristics (parental occupation: (i) never worked/long term unemployed, (ii) routine, (iii) high managerial and professional, (iv) any other type of occupation; and parental education: (a) no qualification, (b) any educational levels lower than first degree and (c) degree education)
- school characteristics (pupil/teacher ratio, percentage of pupils with SEN, FSM, speaking English as main language, average KS2 to KS3 value added, average KS3 to KS4 value added)
- neighbourhood characteristics (Indices of Multiple Deprivation and of Income Deprivation Affecting Children).

All these variables are measured as early as possible (in year 9, wave 1 or earlier). School variables are from the National Pupil Data set and refer to 2004. We provide more details on all these variables in Appendix B.

Estimates of the difference in outcomes between pupils who have and have not received CE/IAG which have taken account of ('controlled for') the potential influence of all these other factors are, as already said, referred to as 'net' effects. These are our best estimates of the true effect of CE/IAG (as measured by questions in the LSYPE).

We use mainly two types of estimation approaches to evaluate the effects of CE/IAG on young people's outcomes: (1) 'regression' and (2) 'propensity score matching'.⁶

⁵ Parenting style positive towards family togetherness is a score taking a value from 1 to 6 and given by the sum of three items: how often the young person had family meals in the last 7 days, spent an evening together at home as a family, and went out together as a family (excluding shopping).

⁶ More details on these methods are provided in Appendix D. We also consider some sensitivity checks using 'instrumental variables' estimation – see Section 4.3 and Section 5.

Both these methods provide an estimate of the net effect of CE/IAG after controlling for the set of other factors potentially affecting young people's outcomes.

2.5 Statistical significance

When research is based on analysis of a sample survey (such as the LSYPE) rather than on a complete record of all members of the population under study, the possibility arises that any differences observed (in our case, for example, between young people who had or had not received CE/IAG) might have arisen by chance rather than representing a true measure of variations in experience. In general, the larger the difference, and the larger the sample of young people on which the measurement is based, the more confident we can be that the difference is a true one.

It is often possible to calculate the risk that a particular finding has arisen by chance, and the results presented in this report are regularly annotated by stars. One star means that there is less than a 10 per cent risk that the observed difference has arisen by chance; two stars means less than a 5 per cent risk; three stars less than a 1 per cent risk. Conversely, we can be 90 per cent (95 per cent; 99 per cent) confident that the observation is a true one.

When we are 'confident' (as just defined) that an observation is true, we say that it is (statistically) *significant*. The word is always used with that meaning in this report, and means 'true', not 'important'. In spite of the large sample of young people in the LSYPE, many of the differences between CE/IAG receivers and non-receivers are found not to be 'significant', and the correct interpretation is to conclude that we cannot reject the assumption that there is no difference.

3. What are the sources and who are the receivers of CE/IAG?

In this chapter we examine the amount of CE/IAG received by students, as reported by LSYPE respondents. Our analysis focuses on CE/IAG about future studies and about future training or apprenticeships that pupils receive in years 9, 10 and 11.

In Section 3.1 we examine the level of CE/IAG received separately by source and school year with the aim of answering the following questions:

- Does the percentage of young people receiving CE/IAG vary across sources?
- Does receipt of CE/IAG vary between years 9, 10 and 11?
- Do the same young people tend to obtain CE/IAG from each of the three sources, or do different pupils consult different sources?
- Do the same young people persistently receive either a little or a lot of CE/IAG across years?

Furthermore, we consider an across-year measure of CE/IAG which summarizes experience across years 9 to 11.

In Section 3.2 we analyse whether there are differences in the types of pupils who do and do not receive CE/IAG. This analysis is important to understand whether the receipt of CE/IAG depends on pupils' family background, previous educational attainments, type of school they attend, and neighbourhood characteristics.

Furthermore, our findings shed light on whether the disadvantaged students especially targeted by the Connexions services were reached effectively.

3.1 *Receipt of CE/IAG by source*

Young people have three main sources of CE/IAG: family members, school teachers and Connexions advisors. Figures 3.1 and 3.2 plot the percentage of young people talking about future studies and about training or apprenticeships separately by source and year.⁷ Note that questions about CE/IAG on training or apprenticeships were asked

⁷ The exact values used to plot these Figures are reported in Table C.1 in Appendix C.

What are the sources and who are the receivers of CE/IAG?

only in year 10 and 11 (waves 2 and 3 of the survey) and only for CE/IAG from school teachers and Connexions people (including advisors and anybody else from Connexions).

Figure 3.1 Percentage of young people receiving CE/IAG about plans for future studies by year

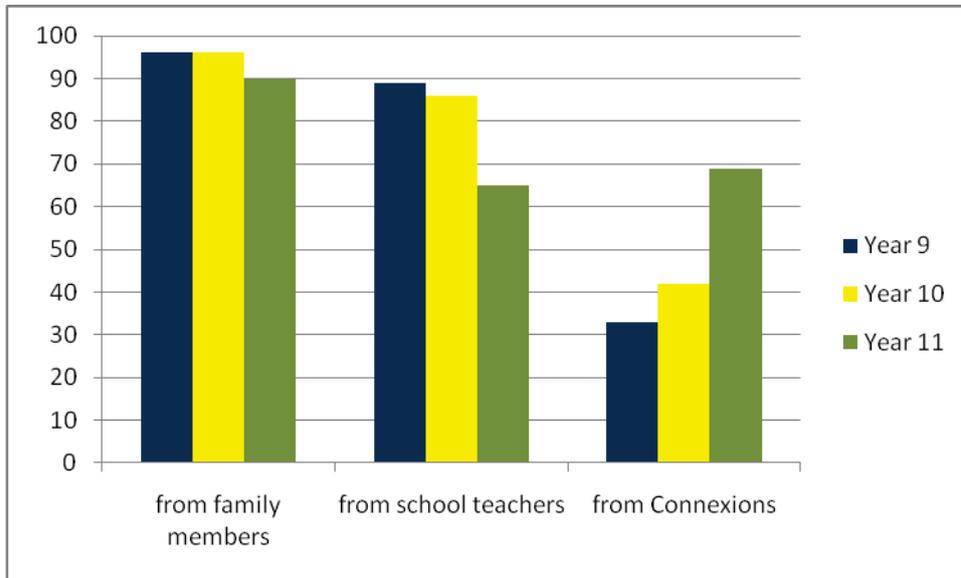
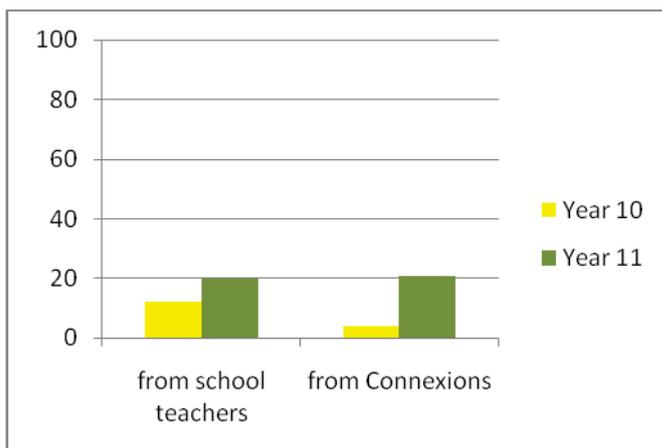


Figure 3.2 Percentage of young people receiving CE/IAG about training or apprenticeships by year



Does the percentage of young people receiving CE/IAG vary across sources?

Young people seem to talk about plan for future studies most with family members followed, in turn, by school teachers and Connexions advisors. School teachers seem

What are the sources and who are the receivers of CE/IAG?

to provide more CE/IAG on training or apprenticeships than Connexions advisors in year 10 and about the same in year 11.

Does receipt of CE/IAG vary between years 9, 10 and 11?

Some young people might seek and receive CE/IAG only when it is needed for looming decisions. We expect this type of person to need and receive more CE/IAG in year 9, ie in the transition from KS3 to KS4 when they choose their GCSE courses, and in again in year 11 when they eventually have to decide what to do after compulsory school. But there are probably also other young people who do not postpone their decisions to the last moment. For those we might expect a higher level of CE/IAG in year 9 and 10 and a low level in year 11. Therefore, it is difficult to make an assumption about what the pattern of variation of CE/IAG across years might be. Looking at Figure 3.1 the pattern seems to differ substantially across sources. Family is continuously involved across the period. CE/IAG about future study from school teachers falls away slightly in Year 11, while the use of Connexions tends to increase at the end of the period.

Do the same young people tend to obtain CE/IAG from each of the three sources, or do different pupils consult different sources?

In Table 3.1 we report a measure of the overlap between the types of CE/IAG sources by each survey respondent.⁸ This overlap measure is a correlation coefficient designed so that:

- a score of 1.00 would indicate that all the young people who consulted source A also consulted source B, and vice versa
- a score of 0.00 would indicate that there was no tendency for those consulting source A to be either more or less likely to use source B
- A score of -1.00 would indicate that none of the young people using source A also reported source B, and vice versa.

There seems to be a strong association between CE/IAG about future studies from family members and from school teachers. In other words, year 9 pupils who are likely to receive CE/IAG from family members are also more likely to receive CE/IAG from school teachers. On the contrary, the probability of receiving CE/IAG about future studies from Connexions advisors is only slightly and not significantly associated with

⁸ The correlation coefficient used in Tables 3.1-3.4 is Goodman and Kruskal's gamma.

What are the sources and who are the receivers of CE/IAG?

school and family CE/IAG. The first two sources tend to act in combination, potentially reinforcing each other. But advice from Connexions seems to be independent of the other two, with no particular tendency either to overlap with or substitute for the other two sources.

Table 3.1 Overlap between sources of CE/IAG in year 9

	CE/IAG about future studies		
	Family	School	Connexions
Family	1		
School	0.709***	1	
Connexions	0.043	0.026	1

One, two and three stars indicate significance at 90%, 95% and 99% respectively.

In tables 3.2 and 3.3 we report the overlap between different types of CE/IAG, including CE/IAG on training, in years 10 and 11. We find again a strong association between CE/IAG about future studies received from family and school and an insignificant association between these two and CE/IAG about future studies from Connexions advisors.

We also observe a strong association between CE/IAG about training from school and from Connexions. In this case it seems that Connexions and schools reach similar students when providing CE/IAG on training.

CE/IAG about future studies from Connexions advisors is strongly associated with CE/IAG about training from Connexions. This seems to indicate that young people who speak with Connexions about either subject, mostly discuss both subjects.

What are the sources and who are the receivers of CE/IAG?

Table 3.2 Overlap between sources of CE/IAG in year 10

	CE/IAG about future studies			CE/IAG about training	
	Family	School	Connexions	School	Connexions
CE/IAG about future studies					
Family	1				
School	0.658***	1			
Connexions	0.027	0.102***	1		
CE/IAG about training					
School	0.028***	0.465***	0.332***	1	
Connexions	-0.048	0.261***	0.916***	0.892***	1

One, two and three stars indicate significance at 90%, 95% and 99% respectively.

Table 3.3 overlap between sources of CE/IAG in year 11

	CE/IAG about future studies			CE/IAG about training	
	Family	School	Connexions	School	Connexions
CE/IAG about future studies					
Family	1				
School	0.525***	1			
Connexions	0.100***	0.016	1		
CE/IAG about training					
School	0.064**	0.537***	0.016	1	
Connexions	-0.068**	-0.085***	0.884***	0.217***	1

One, two and three stars indicate significance at 90%, 95% and 99% respectively.

In conclusion, it seems that children receiving CE/IAG on future studies from school are more likely to receive CE/IAG from family too, whereas young people who talk about training with Connexions are the ones who are less likely to receive CE/IAG about future studies from family.

Do the same young people persistently receive either a little or a lot of CE/IAG across years?

In Table 3.4 we report the overlap in different types of CE/IAG received by pupils across years – are the same young people reporting CE/IAG every time? CE/IAG about future studies in years 9 and 10 are positively and significantly associated – most pupils who reported consulting each source in year 9 did so again in year 10.

What are the sources and who are the receivers of CE/IAG?

But CE/IAG in year 11 does not seem to be significantly related to CE/IAG in years 9 and 10. We find a similar lack of association between CE/IAG about training or apprenticeships in years 10 and 11. Those involved in CE/IAG in year 11 appear to be randomly distributed between young people who had or had not already received this support in the two previous years. It could be that there is a more universal access to CE/IAG in year 11. We will test this assumption in Section 3.2.

Table 3.4 Overlap in CE/IAG between years

	CE/IAG about future studies from family members		
	Year 9	Year 10	Year 11
Year 9	1		
Year 10	0.765***	1	
Year 11	-0.030	-0.011	1
	CE/IAG about future studies from school teachers		
	Year 9	Year 10	Year 11
Year 9	1		
Year 10	0.539***	1	
Year 11	0.045	-0.002	1
	CE/IAG about future studies from Connexions		
	Year 9	Year 10	Year 11
Year 9	1		
Year 10	0.512***	1	
Year 11	-0.011	0.010	1
	CE/IAG about training from school teachers		
		Year 10	Year 11
Year 10		1	
Year 11		0.032	1
	CE/IAG about training from Connexions		
		Year 10	Year 11
Year 10		1	
Year 11		0.021	1

One, two and three stars indicate significance at 90%, 95% and 99% respectively.

Summarizing CE/IAG across years

In our analysis we also summarize receipt of each type of CE/IAG across the three years. The record for each source is divided into two comparison groups. For discussion about future studies, the two groups are defined as follows:

What are the sources and who are the receivers of CE/IAG?

- *Continuous CE/IAG*: discussion with the particular source in all three of years 9, 10 and 11
- *Less than that*: discussion with that source less than three years running, including not at all

For CE/IAG about training and apprenticeships, the two groups are defined as:

- Any CE/IAG: discussion with the particular source in either (or both) of years 10 or 11
- None: discussion with that source in neither year.

We choose this different way to summarize CE/IAG about training or apprenticeships because there were relatively few young people who had talked to either source about this option.

We call these variables, that summarize CE/IAG received in the last three or two years of compulsory school, *across-year CE/IAG* variables. On the other hand, we call CE/IAG received in each year separately, *year-specific CE/IAG*.

In table 3.5 we report the percentages of pupils receiving CE/IAG using the across-year definitions.

Table 3.5 Percentage of young people receiving across-year CE/IAG

	Percentage
<i>CE/IAG about plans for future studies (continuous CE/IAG over years 9 to 11)</i>	
from family members	84
from school teachers	52
from Connexions	14
<i>CE/IAG about training or apprenticeships (any CE/IAG in years 10 or 11)</i>	
from school teachers	30
from Connexions	24

As expected from the year-specific figures reported in Figure 3.1, the great majority of teenagers had discussions about future studies with their family throughout the three year period. About half were continuously (as defined) engaged with their school. Only a small minority had this kind of regular contact (on this subject) with Connexions.

What are the sources and who are the receivers of CE/IAG?

The proposed measure of the amount of CE/IAG received by each young person from each source across years 9, 10 and 11 is not the only possible way of combining LSYPE waves 1, 2 and 3. We also undertook some sensitivity checks with different variants on the across-year CE/IAG definitions:

- across-year CE/IAG about plans for future studies defined as having talked with family members (school teachers or Connexions) in both years 9 and 10;
- across-year CE/IAG about plans for future studies defined as having talked with family members (school teachers or Connexions advisors) in either year 9, or year 10 or both.

These variant definitions are designed to focus on years 9 and 10, where the survey measures of CE/IAG appear more robust (see Appendix C for details on survey questions on CE/IAG across years).

Furthermore, we also use the quantity of CE/IAG reported by pupils in year 9 and 10 and quality of CE/IAG in year 9 to check whether 'more' or 'better' CE/IAG has a greater effect on young people's outcomes than 'any' CE/IAG. A summary of these sensitivity checks is given at the end of Chapter 4.

3.2 Determinants of CE/IAG

In this section we report the main determinants of CE/IAG, using the following set of predictor variables (already described in Section 2.4 and Appendix B):⁹

- child's prior educational attainments (KS2)
- young person has special educational needs (SEN).
- demographic characteristics (gender, number of siblings, lone parent family, ethnic group, English as main language)
- home resources (housing tenure: (i) owned, (ii) rented from council or housing association, (iii) rented privately; household income (expressed as log equivalised income) financial difficulties; having a computer at home, having internet connection at home, private tuition, being eligible for free school meals (FSM)

⁹ The analysis in this section is based on logistic regression (logit) models predicting the probability of receiving across-year CE/IAG.

What are the sources and who are the receivers of CE/IAG?

- parent's role (parents' attitudes to school, school involvement, discipline at home, parenting style positive towards family togetherness, parents' educational aspiration and expectation for their child)
- family background characteristics (parental occupation: (i) never worked/long term unemployed, (ii) routine, (iii) high managerial and professional, (iv) any other type of occupation; and parental education: (a) no qualification, (b) any educational levels lower than first degree and (c) degree education)
- school characteristics (pupil/teacher ratio, percentage of pupils with SEN, FSM, speaking English as main language, average KS2 to KS3 value added, average KS3 to KS4 value added)
- neighbourhood characteristics (Indices of Multiple Deprivation and of Income Deprivation Affecting Children)

Our two main questions are:

- Does the receipt of CE/IAG vary according to pupils' family background, previous educational attainments, type of school they attend, neighbourhood where they live, and so on?
- Is CE/IAG from Connexions reaching pupils with various disadvantaging characteristics?

We begin by estimating five separate models to show which predictors help to explain the probability of a young person reporting each of the five types of across-year CE/IAG defined in Table 3.5. Table 3.6 summarizes the results. Rather than report a massive set of coefficients for each of the many predictor variables, we report for each type of CE/IAG whether different *groups* of characteristics make a significant contribution *in combination* to explaining the probability of receiving CE/IAG. As explained, one, two and three stars indicate increasing levels of significance at 90%, 95% and 99% level respectively.¹⁰

¹⁰ 'Significance' is explained in Section 2.4. We say that a difference in outcomes is 'significant' if we can be 90%, 95% or 99% confident that it has not arisen by chance. We are interpreting significance at the 99% level (three stars) as strong evidence of a true relationship.

What are the sources and who are the receivers of CE/IAG?

Table 3.6 Regression models explaining across-year CE/IAG: significance of groups of predictor variables

	CE/IAG about future studies			CE/IAG about training	
	Family	School	Connexions	School	Connexions
Previous educational attainment (at KS2)				**	**
SEN	***		***		
Demographic			**	***	**
Home resources					
Parents' role	***				
Family background	**			***	
School			***		
Neighbourhood					

One, two and three stars indicate significance at 90%, 95% and 99% respectively.

In Table 3.7 we also report the size of the estimated effects on the probability of receiving CE/IAG, for each explanatory variable which is statistically significant. The reported marginal effects measure the increase in the probability of receiving CE/IAG when a variable increases by one unit. For each variable we report also the observed range (observed minimum and maximum values) between parentheses.

What are the sources and who are the receivers of CE/IAG?

Table 3.7A Significant estimated marginal effects on the probability of receiving CE/IAG about future studies

CE/IAG about future studies from families	Range of values	Effect in percentage points	Significance
SEN	(0/1)	-3.5%	***
<i>Parents' role</i>			
Parental attitudes positive towards education	(1-4)	-1.0%	*
Parenting style positive towards family togetherness	(1-6)	2.0%	***
<i>Family background</i>			
Parents with no qualification	(0/1)	-3.2%	**
<i>School characteristics</i>			
Ofsted's report negative	(1-5)	-1.1%	*
CE/IAG about future studies from school			
<i>Home resources</i>			
Internet access at home	(0/1)	-4.2%	**
<i>Parents' role</i>			
Parenting style positive towards family togetherness	(1-6)	1.8%	**
<i>School characteristics</i>			
School percentage of pupils speaking English as main language)	(1-100)	-0.3%	*
CE/IAG about future studies from Connexions			
SEN	(0/1)	3.5%	***
<i>Demographic characteristics</i>			
Indian	(0/1)	4.1%	*
Bangladeshi	(0/1)	-4.9%	*
Caribbean	(0/1)	9.7%	***
<i>Home resources</i>			
Internet access at home	(0/1)	-3.1%	**
<i>Parents' role</i>			
Parenting style positive towards family togetherness	(1-6)	1.2%	**
<i>School characteristics</i>			
School pupil/teacher ratio	(1-29)	-0.8%	***
School percentage of pupils belonging to mixed ethnicity	(0-17)	-0.7%	***
School % of pupils belonging to ethnic groups excluding Asian, Black and Mixed Ethnicity	(1-36)	0.5%	***

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

What are the sources and who are the receivers of CE/IAG?

Table 3.7B Significant estimated marginal effects on the probability of receiving CE/IAG about training

CE/IAG about training from school	Range of values	Effect in percentage points	Significance
Previous educational attainment (at KS2)	(15-36)	-0.4%	**
<i>Demographic characteristics</i>			
Male	(0/1)	3.1%	***
Mixed Ethnicity	(0/1)	7.4%	***
Single parent	(0/1)	3.3%	**
<i>Home resources</i>			
Home computer at home	(0/1)	4.5%	**
<i>Parents' role</i>			
Positive parental school aspirations	(0/1)	-5.4%	***
Positive parental school expectation	(0/1)	-3.2%	**
<i>Family background</i>			
Parents with no occupation	(0/1)	-4.7%	*
Parents with managerial occupation	(0/1)	-2.7%	**
Parents with no qualification	(0/1)	-4.4%	**
Parents with degree	(0/1)	-2.8%	*
<i>School characteristics</i>			
School average KS2 to KS3 value added	(15-32.7)	2.1%	**
School percentage of pupils belonging to mixed ethnicity	(0-17)	-0.6%	**
<hr/>			
CE/IAG about training from Connexions			
<hr/>			
Previous educational attainment (at KS2)	(15-36)	-0.4%	**
<i>Demographic characteristics</i>			
Male	(0/1)	2.2%	**
<i>Parents' role</i>			
Positive parental school aspirations	(0/1)	-3.2%	**
<i>Family background</i>			
Parents with degree		4.7%	***

One, two and three stars indicate significance at 90%, 95% and 99% respectively.

CE/IAG about future studies from family members is significantly related to SEN, parent's role and family background (see Table 3.6 first column). Children with SEN are less likely to receive CE/IAG from their family (see Table 3.7A). Parents with positive attitudes toward school, a parenting style negative toward togetherness and no qualification seem to talk less about future studies with their children. Finally, children in schools with good Ofsted reports are more likely to receive CE/IAG from their family.

What are the sources and who are the receivers of CE/IAG?

CE/IAG about future studies from school teachers is not significantly related to characteristics of the children, their family, their school and their neighbourhood. The only significant variables and with a negative effect are internet access at home, parental style negative to togetherness, and school percentage of pupils speaking English as main language.

CE/IAG about future studies from Connexions advisors is positively related to SEN and depends also on demographic variables and school characteristics (see Table 3.6). Looking at Table 3.7A we find that Indian and Caribbean pupils receive more CE/IAG from Connexions than white pupils, while Bangladeshi pupils receive less of it. Young people with internet access at home receive less CE/IAG from Connexions. This could be because they are accessing Connexions help online via Connexions Direct or other sources of CE/IAG available on the internet. Parenting style positive towards family togetherness has a positive effect, i.e. pupils that spend more time with their parents (having family meals and evenings, and going out together) are more likely to speak about future studies. Finally, pupils are more likely to talk with Connexion advisors if their school has a higher percentage of pupils belonging to small ethnic groups, a smaller percentage of children from mixed origin and a smaller pupil/teacher ratio.

CE/IAG on training or apprenticeships from school teachers is mainly related to previous educational attainments, demographics, family background characteristics (see Table 3.6). Looking at each of the significant variables in Table 3.7B we find that children with higher KS2 attainment receive less of this type of CE/IAG. On the contrary, this CE/IAG is positively related to being a boy, living in a lone parent household, and having a mixed ethnic identity. We find also that positive parental school expectations reduce the probability of receiving CE/IAG about training from school. This probability is also reduced for pupils whose parents have managerial occupations, no qualification or a degree. Finally, pupils in schools with a high average of the KS2 to KS3 value added receive more of this type of CE/IAG.

CE/IAG on training or apprenticeships from Connexions is negatively related to previous attainments at KS2, to be female, to positive parental school aspirations and to have parents without a degree (see Table 3.7B).

Note also that the variables describing financial resources, such as household income, having financial difficulties and house tenure, are never significant in explaining CE/IAG

What are the sources and who are the receivers of CE/IAG?

from any source. Similarly, neighbourhood characteristics (Indices of Multiple Deprivation and of Income Deprivation Affecting Children) are not related to the probability of receive CE/IAG.

Our main findings can be summarized as follow:

- Young people with poor financial resources or living in a disadvantaged neighbourhood do not seem to receive either more or less CE/IAG than their better-off peers.
- On the other hand, SEN, previous educational attainment, personal demographic variables, family background, parent's role and school characteristics do matter except for CE/IAG about future studies from school.
- Pupils speaking about future studies with their school teachers do not differ significantly from pupils who do not receive this type of CE/IAG.
- Boy and girls have the same probability to talk about future studies, whereas boys talk about training more than girls.
- Having internet access at home seems negatively related with CE/IAG about future studies from school and Connexions. This could be a consequence of a reduced need to talk about future studies with teachers and advisors for young people who looked for CE/IAG about futures studies through internet access at home.

To answer our second question on whether CE/IAG from Connexions has reached disadvantaged young people more effectively than CE/IAG from school and family, we look at how the probability of receiving CE/IAG is related to past educational attainments, having SEN and being eligible for free school meals (FSM). These three variables are among the few clearly defined items of information about pupils known to the school, and so available to policy makers and practitioners to target CE/IAG services more precisely.

In the first row of Table 3.8 we report the estimated effects on the probability of receiving CE/IAG of a unit increase in KS2 attainments, ranging between 15 and 36 points. There is no evidence that CE/IAG about future studies – from any source – is especially targeted at better or worse performing pupils. There is some suggestion that CE/IAG about training or apprenticeships tends to be accessed by pupils with weak prior attainments.

What are the sources and who are the receivers of CE/IAG?

In the second and third rows of the Table we report the estimated effects of being reported as SEN, and of being eligible for FSM, in each case compared with young people not having those characteristics.¹¹

Pupils with special educational needs are 3.5 percentage points¹² less likely to talk with family members about future studies. On the contrary, they are 3.5 percentage points more likely to talk about future studies with Connexions advisors. The two results combined suggest that the young people with SEN have a probability of receiving CE/IAG from Connexions which is 7 percentage points higher than from family. This difference is consistent with Connexions' policy of targeting disadvantage.

Young people with high KS2 educational attainments are less likely to receive CE/IAG about training. An increase of 10 points in this score implies a decrease in the probability of talking about training (with either schools or Connexions) of about 4 percentage points.

Young people from poorer background (indicated by eligibility for free school meals) are neither more nor less likely than others to have taken part in CE/IAG activities, once all other factors are held constant.

Table 3.8 Estimated effects of KS2 attainments, SEN and FSM eligibility on the probability of receiving CE/IAG from various sources

	CE/IAG about future studies			CE/IAG about training	
	Family	School	Connexions	School	Connexions
Previous educational attainment (at KS2)	0.002	0.002	0.002	-0.004**	-0.004**
SEN	-0.035***	-0.028	0.035***	-0.005	0.012
FSM eligibility	-0.016	0.011	0.014	-0.020	0.003

One, two and three stars indicate significance at 90%, 95% and 99% respectively.

In Appendix D we also report results on the different groups of explanatory variables for each type of CE/IAG separately by school year (9 to 11). In summary, parents' role is

¹¹ The table shows marginal effects from the logit models, estimated at the mean of all other variables.

¹² Percentage points are the unit for the difference between two percentages.

What are the sources and who are the receivers of CE/IAG?

generally one of the most important groups of factors to explain CE/IAG received, while demographic and school characteristics are more important in explaining CE/IAG from Connexions advisors. Looking at year-specific CE/IAG, we find that receiving CE/IAG in year 11 does not generally depend on background characteristics whereas young people receiving CE/IAG in years 9 and 10 are a more selected sample. This is consistent with the hypothesis that access to CE/IAG in year 11 seems to reach a broader cross-section of young people.

3.3 Conclusions

The answers to the questions about CE/IAG asked in waves 1 and 2 of the survey (years 9 and 10) produced some very clear profiles. There was a strong tendency for pupils who had used one source of CE/IAG to have used the other two. There was a strong tendency for those who reported such discussion in year 9 also to report it in year 10. Those who took part differed in measurable ways from those who did not, with some evidence that the penetration of CE/IAG from Connexions was slightly greater among young people who might have been expected to have less successful academic trajectories. This seems to imply that disadvantaged students especially targeted by the Connexions services were reached effectively.

On a number of occasions, though, the analysis suggested that CE/IAG reported in year 11, though not very much more common than in years 9 and 10, was more universal or, in other words, less correlated with pupils' characteristics. This may be interpreted to mean that CE/IAG (from all sources) is more widespread (ie less selectively available) during the crucial final year of compulsory schooling.

4. Effects of CE/IAG on young people's opinions while still at school

In this chapter we evaluate the effects of CE/IAG about future studies on two sets of short-term outcomes measured when young people were still in the compulsory stage of their education: their attitudes to school, and expectations about what they would do after year 11. In the following we will refer in shorthand to this set of attitudes to school and intentions about their future as young people's 'opinions'.

In Section 4.1 we evaluate the effect of the three sources of CE/IAG about future studies over the three years 9, 10 and 11. The results of this analysis will help us in answering the following questions:

- Which source of CE/IAG among family, school and Connexions is the most effective?
- Does the effect of CE/IAG on young people's opinions reduce with time?
- Does CE/IAG received by pupils in year 9, 10 and 11 have similar effects on young people opinions?

In Section 4.2 we summarize the effect of CE/IAG received by pupils in years 9, 10 and 11 using the across-year CE/IAG definitions introduced in Section 3.1, assessing the cumulative effect of three year's advice on young people opinions measured in year 11 – the end of the short-term observation period. The aim is to answer the following research questions:

- What is the effect of across-year CE/IAG from family, school and Connexions on pupils' opinions reported in year 11?
- Is CE/IAG about training producing any different effect than that on future studies?
- Is the effect of CE/IAG from Connexions advisors and from school teachers comparable?

In Section 4.3 we carry out a sensitivity analysis to check the robustness of our result to variants in the definition of across-year CE/IAG.

4.1 CE/IAG and Young People's Opinions in year 9, 10 and 11

We begin by looking at the effect of CE/IAG about future studies from family members on pupils' attitudes to school reported in year 9, 10 and 11.

As already defined in Section 2, attitudes to school is a score taking a value from 0 to 48, given by the sum of 12 items each scored 0 to 4. These items are answers to questions on how the young person feels about school (for example whether he/she is happy at school and whether the work he/she does in lessons is a waste of time, see Appendix B for more details). High scores correspond to more positive attitudes.

In the upper panel of Table 4.1 we present the gross effects of CE/IAG received from family members in years 9, 10 and 11 on attitudes to school measured in years 9, 10 and 11.¹³ These gross effects are computed by regressing attitudes to school in year 9 on CE/IAG in year 9 (first row); attitudes to school in year 10 on CE/IAG in year 9 and 10 (second row); and attitudes to school in year 11 on CE/IAG in year 9, 10 and 11 (third row). These gross effects represent the raw difference in the attitudes to school for young people who received CE/IAG compared with those who did not.

A series of tables will be presented in this chapter, all with a similar format, and the first will be explained in detail.

The coefficients measure the effect of CE/IAG in units of the attitudes score. For example the coefficient in the first row, first column measures the effect of CE/IAG from family members received over the course of year 9 on attitudes to school reported at the end of year 9. Young people who received CE/IAG from family members were 4.4 points higher on the attitude scale than those who did not. Since the maximum scores on the scale is 48, this 4-point advantage could be interpreted as a rise of about 8 (4/48 multiplied by 100) percentage points.

Moving down the table from the top left corner, the next coefficient shows that pupils who reported family CE/IAG in year 9, were still showing a better set of attitudes when

¹³ Tables 4.1 to 4.3 are based on ordinary least squares regression models in which the coefficients can directly be interpreted as increases in attitude scores. Significance is denoted by stars in the normal way.

Effects of CE/IAG on young people's opinions when still at school

interviewed again at the end of year 10, though the effect had shrunk with time from 4.4 points to 3.3. Moving down the column again shows that the same group of young people who had received family CE/IAG in year 9 were still happier or more optimistic at the end of year 11, though the difference has shrunk again to 3.1. Such a shrinkage in the effect over time is probably what one would have expected.

The next column to the right shows the effects of family CE/IAG received in year 10. Obviously there could be no effect on attitudes in year 9, but again there was an apparent improvement in attitudes measured in year 10 (3.8), which survived, slightly weaker, to year 11 (3.3).

The right hand column follows the same logic, showing the difference in attitudes reported at the end of year 11 associated with family CE/IAG received in the course of that year. Unlike the previous cells in the table, though, family CE/IAG in year 11 is apparently associated with a deterioration (-0.2) in attitudes – though since the effect is not significant (no stars) the correct interpretation is that there was no effect either way.

As discussed in Chapter 2, the gross effects reported in the top panel of Table 4.1 could be spurious because a gap in the average attitudes between these two groups of young people (who had and had not received family CE/IAG) might be related to differences in their background. To take account of this problem we also estimate the net effects which are computed by controlling for differences in background characteristics: demographic characteristics, family background, home resources, parent's role, school variables, neighbourhood characteristics, educational attainments and SEN (see Chapter 2 for more details of these variables).

The net effects are smaller in size than the gross effects (compare upper and lower panels in Table 4.1). This implies that the gross effects are in part spurious and reflect the fact that young people receiving CE/IAG from family members are often the sorts of young people who would have positive attitudes in any case. For this reason we focus more on the results about net effects.

The net effect of CE/IAG from family members received by pupils in year 9 reduces with time (moving down the columns). It is highest for attitudes to school in year 9 and then decrease in years 10 and 11.

Effects of CE/IAG on young people's opinions when still at school

Looking at attitudes to school reported in year 11, we can compare the net effects of CE/IAG from family members received in years 9, 10 and 11. CE/IAG received in years 9 and 10 imply an increase of about 1.6 and 2.2 units in the attitudes score, whereas CE/IAG received in year 11 has a very small negative effect. This indicates that CE/IAG about future studies received by young people in year 11 has no additional positive effect on top of CE/IAG already received in previous years.

In summary the results in Table 4.1 inform us that CE/IAG from family members has significant and positive effects (both gross and net) on attitudes to school. CE/IAG delivered in year 9 has a slightly stronger effect than that reported a year later; but family CE/IAG in year 11 has no positive effect on attitudes.

Table 4.1 Gross and net effects of CE/IAG from family members on attitudes to school (ranging from 0 to 48)

CE/IAG received from family members in.					
	(year 9)		(year 10)		(year 11)
Gross effect on attitudes measured in					
year9	4.375	***			
year10	3.270	***	3.769	***	
year11	3.125	***	3.330	***	-0.178
Net effect on attitudes measured in					
year9	3.196	***			
year10	2.295	***	2.938	***	
year11	1.643	***	2.237	***	-0.580 *

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Tables 4.2 reports gross and net effects of CE/IAG from school teachers on attitudes to school, in exactly the same format as the results for CE/IAG from family members shown in Table 4.1. The results are very similar to the ones found for CE/IAG from

Effects of CE/IAG on young people's opinions when still at school

family members. CE/IAG from school teachers has significant and positive effects (both gross and net) on attitudes to school. As before, the impact of any injection of advice seems to wither slightly, the longer the time elapsed before attitudes are measured. As before, CE/IAG received in year 11 has no significant effect on attitudes to school.

Table 4.2 Gross and net effects of CE/IAG from school teachers on attitudes to school (ranging from 0 to 48)

CE/IAG received from school teachers in					
	(year 9)		(year 10)		(year 11)
Gross effect on attitudes measured in					
year9	4.260	***			
year10	3.209	***	3.282	***	
year11	2.832	***	2.925	***	0.122
Net effect on attitudes measured in					
year9	3.130	***			
year10	2.219	***	2.713	***	
year11	1.963	***	2.469	***	0.171

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Table 4.3 shows the parallel analysis of the effects of CE/IAG from Connexions on young people's attitudes to school. In contrast to CE/IAG from family members and school teachers there are no significant positive effects, neither gross nor net, on attitudes to school. The only impact large enough to reach statistical significance is the gross effect of the CE/IAG from Connexions received in year 10 on attitudes to school in year 10 which appears to be negative. It is important to note though that Connexions IAG covers a wider range of domains (from housing to careers, and from drug and alcohol abuse to education) with respect to those provided by family and school, and improvement in attitudes to school may not be among its direct targets. The content of CE/IAG from Connexions may be more about alternative and more vocational routes.

Table 4.3 Gross and net effects of CE/IAG from Connexions advisors on attitudes to school (ranging from 0 to 48)

	CE/IAG received from Connexions advisors in		
	(year 9)	(year 10)	(year 11)
Gross effect on attitudes measured in			
year9	0.147		
year10	0.087	-0.270	*
year11	0.058	-0.204	0.199
Net effect on attitudes measured in			
year9	0.196		
year10	0.158	-0.078	
year11	-0.063	-0.078	0.156

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Comparing Tables 4.1 to 4.3, we can conclude that CE/IAG from family members and school teachers produce a similar positive effect on attitudes to school. The highest net effect is observed for CE/IAG (both from family members and school teachers) in year 9 on attitudes to school in year 9, and it implies an increase in attitudes to school of about 6 percentage points.

In Tables 4.4 to 4.6 we report the effects of different sources of CE/IAG on the probabilities of young people saying that they plan to stay in full time education.¹⁴ The layout of the tables is exactly equivalent to Tables 4.1 to 4.3, except that the outcome

¹⁴ Tables 4.4 to 4.6 are based on linear probability models in which the coefficients can be interpreted as an increase in the probability of the outcome under consideration. Significance is denoted by stars in the normal way.

Effects of CE/IAG on young people's opinions when still at school

here is the probability of any young person saying that s/he expected to stay in full-time education in year 12.

So, for example, young people who had advice from family members in year 9 were 19 percentage points (gross) more likely to say they expected to remain in full-time education, when asked at the end of year 9. The effect was only 8 percentage points (net), after the analysis took account of background characteristics. As in the analysis of attitudes in Table 4.1, the impact of year 9 family CE/IAG reduces over time, the later the measurement of intentions. While there is a positive effect of CE/IAG on young people's intention to stay in full time education after 16 reported in years 9 and 10, there is no positive effect of CE/IAG on this intention reported in year 11.

Table 4.4 Gross and net effects of CE/IAG from family members on planning to stay in full-time education

	CE/IAG received from family in				
	(year 9)		(year 10)		(year 11)
<hr/>					
Gross effect on intention to stay in FTE measured in					
year9	0.186	***			
year10	0.142	***	0.109	***	
year11	0.043	**	0.063	***	-0.017
<hr/>					
Net effect on intention to stay in FTE measured in					
year9	0.082	***			
year10	0.047	**	0.044	**	
year11	-0.040	*	0.030		-0.024

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

CE/IAG from school teachers received in year 9 and 10 (Table 4.5) has significant positive gross and net effects on intentions to stay in full time education reported in years 9 and 10. The net effects of CE/IAG from family members in years 9 and 10 on

Effects of CE/IAG on young people's opinions when still at school

the intention to stay in full time education after 16 vary between 4.4 and 8.2 percentage points (Table 4.4), while the same effects from school teachers vary between 2.5 and 4.5 percentage points. Therefore it seems that CE/IAG from family members is more effective in increasing the probability that young people will stay in full time education than CE/IAG from school teachers.

Note, though, that by the end of year 11 (ie at the time the actual decision is taken), neither family nor teachers appear to have a significant and positive net impact on young people's intention to stay in education the following year. The fact that CE/IAG in year 11 has no additional effect on top of the CE/IAG already received in previous years may indicate that CE/IAG during the last year of compulsory school is too late. Pupils in year 11 may already have taken their decision, regardless of any further input from family, school or Connexions. However, this insignificant effect of CE/IAG in year 11 could also be a consequence of measurement error issues affecting the CE/IAG reported in year 11 (see Appendix C).

Table 4.5 Gross and net effects of CE/IAG from school teachers on planning to stay in full-time education

CE/IAG received from school teachers in					
	(year 9)		(year 10)		(year 11)
Gross effect on intention to stay in FTE measured in					
year9	0.113	***			
year10	0.094	***	0.074	***	
year11	0.072	***	0.034	***	-0.003
Net effect on intention to stay in FTE measured in					
year9	0.030	**			
year10	0.025	**	0.046	***	
year11	0.007		0.014		-0.009

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Effects of CE/IAG on young people's opinions when still at school

Table 4.6 shows the equivalent analysis for advice provided by Connexions. The table shows no significant differences in intentions between young people who did and did not have advice from this source – neither gross nor net.

Table 4.6 Gross and net effects of CE/IAG from Connexions advisors on planning to stay in full-time education

CE/IAG received from Connexions in			
	(year 9)	(year 10)	(year 11)
Gross effect on intention to stay in FTE measured in			
year9	0.012		
year10	0.010	-0.010	
year11	0.006	-0.008	-0.006
Net effect on intention to stay in FTE measured in			
year9	0.004		
year10	0.005	0.007	
year11	0.008	-0.003	-0.009

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

To summarize, results on the effects of different sources of CE/IAG on the probability of planning to stay in full time education are very much in line with the effects on attitudes to school. The effects are quite significant only for CE/IAG from family members and school teachers received in year 9 and 10, whereas there are no significant effects of CE/IAG from Connexions advisors. This latter CE/IAG has a different focus and content to that from family and school; in particular it can be more about wider lifestyle choices, finance and housing etc. as well as alternative routes to the school-based and academic options. For this reason it is not surprising that we find that CE/IAG from Connexions is not significantly related to an intention to stay in full-time education.

Effects of CE/IAG on young people's opinions when still at school

For completeness, we also estimated the effect of different sources of CE/IAG on the other possible intended outcomes reported by young people (besides continuing in education): working full time, training or apprenticeship, or not knowing what he/she will do after year 11. We report the results in Appendix D. In evaluating these findings, it can be argued that CE/IAG should encourage young people to choose between the options of continuing in education, getting a training place or apprenticeship or working, but that not knowing what to do is not a desirable 'intention'.

Because CE/IAG from family members and school teachers in years 9 and 10 encourages young people to think of staying on in education, it reduces the probability that they will plan to work full time (Tables F.1 and F.2). The corresponding net effects remain negative, and significant only for CE/IAG provided in year 9 and for the probability of planning to work full time in years 9 and 10. In contrast, CE/IAG from Connexions advisors does not generally have any effect on planning to work full time after year 11 (Table F.3).

None of the three sources of CE/IAG appears to have a net effect on planning to take a training place. (Tables F.4, F.5 and F.6), except for a mixed result for CE/IAG from family members in year 9 which seems slightly to decrease expectations of taking a training place or apprenticeship in year 9 and to increase them in year 10.

The net effect of CE/IAG from family members and school teachers is to reduce the risk that, in years 9 and 10, young people don't yet know what they will do after year 11 (Tables F.7 and F.8). Having no plans yet for the future is an undesirable outcome, so numerically negative effects of CE/IAG are beneficial. These effects have shrunk to nothing by year 11. Again we do not find any effect of CE/IAG from Connexions advisors (Table F.9).

In summary the four main findings of this section are:

- only CE/IAG from family members and school teachers received in years 9 and 10 has an effect on young people's opinions, and especially attitudes to school and planning to stay in full time education.
- CE/IAG received in years 9 and 10 has in a bigger effect than that received in year 11, although this can be in part due to a change in the questions used to collect information on CE/IAG in year 11.

- The effect of CE/IAG is higher for young people's opinions measured in year 9 and 10 than in year 11. This seems to indicate that the effects of CE/IAG shrink with the passage of time.
- CE/IAG from Connexions advisors does not seem to have any effect on pupils' opinions. However, a change of opinion may not always be the aim of the intervention. For example, a young person may already have an option or career in mind and talk to Connexions about the steps they need to take to get there

4.2 Across-year CE/IAG and young people's opinions in year 11

To get an overview of the effects of CE/IAG about future studies on young people's opinions in year 11, we consider the sequence of CE/IAG receipt over years 9 to 11. As already said in Section 3 across-year CE/IAG about future studies is defined as having talked to the relevant source about this in each of the three last years of compulsory school. Those consulting the source less than three years running are counted as the comparison group. This definition is potentially arbitrary. For this reason we also consider other alternative definitions of cumulative CE/IAG and find the results of our analysis do not change (see Section 4.3).

The young people's opinions we consider are again attitudes to school and intentions about what to do after 16. Table 4.7 reports the net effects, using the same regression techniques as have already been used for year-specific CE/IAG reported in tables 4.1-4.6.

The previous tables showed some effects on opinions expressed in years 9 and 10, but few large effects of CE/IAG on young people's opinions measured in year 11. The analysis of year 11 outcomes in Table 4.7 is consistent with that. The only significant effect (at the 99% confidence level) is that CE/IAG about future studies from school teachers improves young people's optimism by an average of 1.3 points (out of a maximum score of 48).

Effects of CE/IAG on young people's opinions when still at school

Table 4.7: Net effects of across-year CE/IAG about future studies, using regression estimation

Year 11	CE/IAG Family	CE/IAG School		CE/IAG Connexions
Attitudes to school	0.178	1.304	***	0.014
Planning to stay in education	-0.013	0.007		0.012
No plans (don't know)	0.003	0.003		-0.006

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

The effects reported in Table 4.7 are computed using regression estimation to control for the young people's background characteristics (demographic characteristics, family background characteristics, home resources, parent's role, school variables, neighbourhood characteristics, educational attainments and SEN). To check the robustness of the results we also estimate these CE/IAG effects by using propensity score matching methods and we report the new estimated effects in Table 4.8.

The results on CE/IAG effects are very similar when using either the matching or regression estimation methods. In both Tables 4.7 and 4.8 we find a small but significant positive effect on attitudes to school (year 11) of across-year CE/IAG about future studies from school teachers. In both tables no other effects are statistically significant.

Table 4.8: Net effects of across-year CE/IAG about future studies, using propensity score estimation

Year 11	CE/IAG Family	CE/IAG School		CE/IAG Connexions
Attitudes to school	0.261	0.966	**	-0.026
Planning to stay in education	0.005	-0.000		0.017
No plans (don't know)	0.005	-0.001		-0.015

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

The results so far make use of the questions about CE/IAG on future studies asked in each of waves 1 to 3 (Years 9-11). Further questions were asked in waves 2 and 3 (years 10 and 11) only about whether young people had talked to teachers or Connexions about possible training or apprenticeships. In Section 3, we defined across-year CE/IAG about training or apprenticeships as having talked with school teachers (or Connexions) in at least one of the two last years of compulsory education.

Effects of CE/IAG on young people's opinions when still at school

This definition means that our comparison group consists of pupils who had not talked about this to the relevant source in either year.

Whereas we would expect discussions of future studies to encourage an intention to remain in education, it is not clear what outcome should be expected when young people discuss training or apprenticeships. Advice givers might still emphasise the potential value of continuing in academic or vocational education; or, given the particular nature of the enquiry, might encourage or enable pupils to think positively about on-the-job training opportunities. It is possible that the minority of young people who had had such discussions are a self-selected group, who were particularly interested in following the training route.

The outcome, reported in Table 4.9, is that young people who had discussed training or apprenticeships with school teachers were about 3 percentage points less likely to expect to remain in education when asked at the end of year 11; and about 3 percentage points more likely to expect to take up some kind of training place. The effect is not large, though it is confirmed as statistically significant by both estimation procedures. Although it does not contribute to increase the percentage of 16 year olds who stay at school or enter college, this seems an acceptable outcome, given the focussed content of CE/IAG about training or apprenticeships.

But the analysis suggests no significant net effects of CE/IAG about training or apprenticeships obtained from Connexions.

Table 4.9: Net effects of across-year CE/IAG about training or apprenticeships on pre-16 opinions

	Regression estimation		Propensity score estimation	
	CE/IAG	CE/IAG	CE/IAG	CE/IAG
	School	Connexions	School	Connexions
Year 11				
Attitudes to school	-0.292	-0.239	-0.053	0.110
Planning to stay in education	-0.035	* -0.002	-0.030	** 0.007
Planning to work	-0.003	0.004	-0.004	-0.007
Planning to get training	0.031	* -0.007	0.029	** 0.007
No plans (don't know)	0.004	0.005	0.003	-0.003

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Effects of CE/IAG on young people's opinions when still at school

In conclusion, CE/IAG from school teachers seems more effective, but not by a huge amount, than CE/IAG from Connexions advisors. Given that Connexions CE/IAG has been targeted more on young people with lower educational attainments and SEN (see Section 3), it is of interest to compare the effects of CE/IAG across sources by focusing on these disadvantaged young people and this is what we will do in Section 6.

4.3 Sensitivity analysis

Any method of summarizing CE/IAG received by pupils over years 9, 10 and 11 in one single across-year definition is to some extent arbitrary. For this reason we carried out sensitivity analyses to check whether an evaluation of the CE/IAG effect changes if alternative summary definitions of cumulative CE/IAG receipt are adopted.¹⁵

Since CE/IAG about future studies provided in year 11 does not seem to have any effect on any of the young people's opinions considered (attitudes to school, or expectations about what they would do after 16), we also consider across-year CE/IAG about future studies defined using only inputs in years 9 and 10. Then we define across-year CE/IAG from each source on the basis of the pupil having talks with family members (school teachers or Connexions advisors) about his/her plan for future studies in both years 9 and 10. The comparison group consists of those who talked to the relevant source only once, or not at all, in years 9 or 10, regardless of what happened in year 11. We did not find any substantial difference in the results, except for an increase in significance of the effect of CE/IAG on future studies from family members and from school teachers on attitudes to school in year 11 (3 and 5 percentage points respectively). CE/IAG from Connexions advisors still does not produce any significant effect.

Since CE/IAG from Connexions advisors is not as frequent as CE/IAG from family members or school teachers, we also decided to replicate the results using a third definition of CE/IAG. In this case, we defined across-year CE/IAG from Connexions advisors as having talked with Connexions advisors in either year 9, or year 10 or both. Again we did not find any significant effect of CE/IAG on any of the young people's opinions.

Furthermore, we also took account of the *quality* of CE/IAG self-reported by pupils in year 9. Pupils were asked to report the usefulness of the CE/IAG they received on a 5-point scale from not at all useful (1) to very useful (5). When adopting this definition we find that 'good quality' CE/IAG from Connexions advisors has a positive effect on attitudes to school, but of only at 90% level of significance and no effects on other young people's opinions (see Table 4.10). 'Good quality' CE/IAG from family and

¹⁵ Results of these sensitivity checks are available from the authors on request.

Effects of CE/IAG on young people's opinions when still at school

school seem to have a larger positive effect on attitudes but no effect on other opinions.

Table 4.10: Net effects of the quality of CE/IAG about future studies in year 9, using regression estimation

Year 11	CE/IAG Family	CE/IAG School	CE/IAG Connexions
Attitudes to school	0.582	*** 0.855	*** 0.086 *
Planning to stay in education	-0.003	0.001	0.002
No plans (don't know)	0.001	0.002	-0.000

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

We also used the quantity of CE/IAG received and reported by pupils in year 9 and 10. This variable measures the frequency of CE/IAG received and takes values from 1 (not at all) to 5 (a lot). As for the quality, the quantity of CE/IAG is a subjective variable with potential measurement errors and not easily comparable across pupils and sources. That said, these subjective variables can still provide useful information to better understand the effect of CE/IAG. We sum the quantity of CE/IAG received in year 9 and 10 and evaluate its effect on pupils' opinions. We find little effect of CE/IAG quantity on opinions, except for CE/IAG from family and school which has a positive effect on attitudes to school (see Table 4.11).

Table 4.11: Net effects of the quantity of CE/IAG about future studies in year 9 and 10, using regression estimation

Year 11	CE/IAG Family	CE/IAG School	CE/IAG Connexions
Attitudes to school	0.392	*** 0.908	*** -0.191
Planning to stay in education	-0.001	-0.002	0.000
No plans (don't know)	0.001	-0.000	0.001

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Finally, we use an alternative technique to check whether there is any causal effect of Connexions CE/IAG on young people's opinions. Since the proportion of young people receiving CE/IAG from Connexions advisors varies substantially from school to school (from 0 to 100 per cent), we can use the school percentages receiving Connexions CE/IAG in year 9, 10 and 11 as a predictor for whether any particular young person was likely to have advice from this source. We proceed in two steps: first we compute a

prediction of CE/IAG experience at individual level using these predictors and the young people's background variables; second we regress the young people's outcomes on the set of background variables and the *predicted* Connexions CE/IAG, which is being used as a proxy for actual Connexions CE/IAG receipt. This indirect approach is known as 'instrumental variable estimation', and is designed to avoid the possibility that individual young people with particular hopes and expectations were the ones most likely to seek or accept advice. The CE/IAG variables predicted on the basis of school characteristics are strongly correlated with the probability of receiving CE/IAG at individual level; but it is assumed that they are not directly correlated with young people's outcomes once school characteristics have been controlled for. This analysis still failed to identify any significant effect of Connexions CE/IAG on young people's opinion-outcomes, even when considering 'high quality' CE/IAG (as defined above).

4.4 Conclusions

This chapter has looked at the influence of CE/IAG received in years 9 to 11 on young people's opinions expressed over roughly the same period. Both the inputs (CE/IAG) and the outcomes (opinions) are measured before the point at which young people actually decide what to do in year 12.

The young people's opinions we considered are:

- attitudes to school.
- intention to stay in education, to take a training place or apprenticeship, to work,
- not knowing what they will do after year 11,

Our main findings are summarized below.

- There are some clear signs that talking to either family members, or to school teachers, about future studies in the course of years 9 or 10 has some positive effects on attitudes to school, and the intention to stay in education and reduces pupils' probability of not knowing what they would do after year 11.
- Pupils who spoke to school teachers about the possibility of training or apprenticeships were rather less likely to expect to remain in full-time education, but similarly more likely to intend to get training places, than those who had not had such discussions.

Effects of CE/IAG on young people's opinions when still at school

- CE/IAG (about either future studies or training/apprenticeships) from Connexions does not seem to have any measurable effect on young people's opinions;
- There is no measurable effect on opinions of CE/IAG received in year 11.

The fact that CE/IAG in year 11 has no measurable effect on opinions in addition to the effects of CE/IAG received in year 9 and 10 may indicate that CE/IAG during the last year of compulsory school is too late. Pupils in year 11 have probably already taken their decision and received adequate CE/IAG about future studies. This could suggest that early provision of CE/IAG about future studies and training/apprenticeships is more effective.

5. Effects of CE/IAG on young people's post-16 outcomes

In this chapter we consider the net effects of CE/IAG experienced over years 9, 10 and 11 on young people's post-16 outcomes. Chapter 4 suggested that CE/IAG had short-term effects on young people's opinions, at least in years 9 and 10. The main aim now is to assess whether CE/IAG received by pupils during the compulsory school period has a long-term effect on their outcomes after they reach the end of compulsory education. To this end we consider young people's post-16 decisions and destinations.

5.1 Young people's post-16 outcomes

The LSYPE distinguished four types of post-16 destination as reported in waves 4 and 5 (years 12 and 13)

- Full-time education – this is generally regarded as the choice that could lead to more successful long term outcomes for the majority of young people
- Work with training – training activities will remain an option for 16 and 17 year-olds under the proposals for raising the participation age. This is an appropriate alternative activity, especially for young people with vocational, rather than academic interests.
- Work without training – it is assumed that work is not a desirable objective for young people unless it includes a training element. The boundaries between work with and without training are probably unclear.
- NEET (not in employment, education or training) – this is an 'activity' strongly associated with very poor future prospects.

There are three measures of each of these activities. The one mainly analysed here is the number of months spent in each of the four activities during the 21 month period between September 2006 (year 12) and May 2007 (year 13). The estimated effects of CE/IAG on the average amounts of time spent in each role over the period are highlighted in bold in Tables 5.1-5.3.

Young people were also asked what they were doing at the moment, when interviewed at waves 4 and 5 of the LSYPE (interviews were carried out between June and August in 2007 and 2008). The categories for the main activities change slightly between

waves 4 and 5. To maintain comparability between the two waves we consider work and training together.

Another potential outcome which is generally considered positive for young people is to have reasonably stable careers over the two year period following the minimum school leaving age. The bottom panel of each of the following tables shows the estimated effects of CE/IAG on the probability of three types of outcome:

- *Negative changes* - identifies pupils who planned (at year 11) to stay in full-time education but ended up not in education (in year 12), or pupils who planned to be in work or training but were NEET at 16-17;
- *Stable pattern* - identifies pupils who reported no changes in activity over the 21 month post-compulsory period;
- *Very unstable pattern* - identifies young people who had two or more changes in activity over the 21 months after compulsory school.

5.2 CE/IAG effects on post-16 outcomes: empirical results

Tables 5.1 and 5.2 record the net effect of talking to each of the three sources of CE/IAG about future studies in years 9 to 11, on outcomes in years 12 and 13, taking account of the set of background variables which we have already defined.¹⁶ Table 5.1 uses standard regression techniques to control for background characteristics.

Before presenting the findings, we would like to clarify how the net effect coefficients should be interpreted. When we consider months spent in different status (between September 2006 and May 2007), the net effect is measured in number of months; so a net effect of 0.5 would imply an increase of half a month. All other outcomes are variables taking a value of one if a status or condition (being NEET, having a stable pattern, etc) occurs, and zero otherwise. For these variables, the coefficients reported measure the net effects of CE/IAG on the probability of being in the specific status or

¹⁶ We use ordinary least squares regression models for the number of months spent in each activity, and linear probability models for the variables describing young people's current situation or pattern over time. The interpretation of the former is an increase (decrease) in the number of months spent in each activity associated with CE/IAG; for the latter, the interpretation is an increase (decrease) in the probability of each outcome. Significance is denoted by stars in the normal way.

Effects of CE/IAG on young people's post-16 outcomes

condition. A value of 0.2 would therefore imply an increase in the probability of 20 percentage points. Assuming that the probability for pupils who did not receive CE/IAG was 50%, this would imply a probability of 70% for pupils who did receive CE/IAG.

The effects of CE/IAG about future studies are quite small or statistically insignificant. CE/IAG on future studies from family members decreases the probability of two or more changes in activity (-2 percentage points). CE/IAG about future studies from school teachers increases the probability of working at 17-18 by 2 percentage points. Finally CE/IAG about future studies from Connexions advisors seems to reduce the time spent in training or apprenticeship by 0.2 of a month.

Table 5.1 Net effects of CE/IAG about future studies on young people's outcomes after 16, regression estimation.

	CE/IAG Family	CE/IAG School	CE/IAG Connexions
Months spent in full-time education	0.228	-0.008	0.054
Full-time education at 16-17	0.005	-0.005	0.017
Full-time education at 17-18	0.006	-0.023	-0.009
Months spent in training	0.102	-0.019	-0.234*
Months spent working	-0.162	-0.124	0.219
Work or training at 16-17	0.001	0.001	-0.015
Work or training at 17-18	0.007	0.022*	0.014
Months spent in NEET	-0.116	-0.074	-0.077
NEET at 16-17	-0.006	0.004	-0.001
NEET at 17-18	-0.013	0.001	-0.005
Negative change	0.015	0.003	0.000
Stable pattern	0.006	-0.029	0.001
Very unstable pattern	-0.021*	0.009	-0.005

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

For each of the across-year inputs of CE/IAG about future studies, and for each of the post-16 outcomes, we have also estimated the net effect by using propensity score matching estimation (Table 5.2). The results are similar (compare Tables 5.1 and 5.2). Again, we find that the net effects of CE/IAG about future studies are generally quite small and statistically insignificant. The main finding (again) is a small reduction in the

Effects of CE/IAG on young people's post-16 outcomes

proportion reporting a 'very unstable' pattern of activities, associated with CE/IAG from family.

Table 5.2 Net effects of CE/IAG about future studies on young people's outcomes after 16, propensity score matching estimation.

	CE/IAG Family	CE/IAG School	CE/IAG Connexions
Months spent in full-time education	0.472	-0.360	0.236
Full-time education at 16-17	0.001	0.002	0.003
Full-time education at 17-18	-0.027	0.000	0.001
Months spent in training	0.123	0.141	-0.312
Months spent working	-0.403	0.265	0.269
Work or training at 16-17	0.001	-0.003	-0.012
Work or training at 17-18	0.020	0.000	0.015
Months spent in NEET	-0.155	-0.021	-0.173
NEET at 16-17	-0.003	0.001	0.009
NEET at 17-18	0.007	0.000	-0.016
Negative change	0.015	-0.003	-0.015
Stable pattern	0.029	-0.022	0.001
Very unstable pattern	-0.034**	0.014	0.000

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Table 5.3 records the estimated effects on post 16 outcomes for young people who talked (in years 10 and 11) to school teachers or Connexions about training or apprenticeships. As discussed in Chapter 4, the interpretation of these 'effects' is complicated by the possibility that young people who discussed training or apprenticeships may have been individuals who were particularly interested in such vocational trajectories. In fact, those who had CE/IAG on this subject within their school environment spent significantly less time in education after 16, but significantly more time in training, or in work, than those who had no such contacts. These are potentially encouraging findings.

The most significant net effects are those of CE/IAG on training or apprenticeships from school teachers. In particular this CE/IAG increases

- by about half a month the time spent in work (21 maximum),

Effects of CE/IAG on young people's post-16 outcomes

- by about 0.4 of a month the time spent in training or apprenticeships,
- by about 5 percentage points for the probability of working or getting a training or apprenticeship at 16-17,
- by about 3 percentage points the probability of working or getting a training or apprenticeship at 17-18,
- by about 2.5 percentage points¹⁷ the probability of negative changes ie the probability of ending up in a destination which is “worse” than the one planned before completing compulsory school.

The effects of CE/IAG about training or apprenticeships from Connexions were in the same direction, but not significant.

Table 5.3 Net effects of CE/IAG about training or apprenticeships on young people's outcomes after 16.

	Regression estimation		Propensity score estimation	
	CE/IAG School	CE/IAG Connexions	CE/IAG School	Connexions
Months spent in full-time education	-0.877***	-0.279	-0.736**	-0.371
Full-time education at 16-17	-0.059***	-0.004	-0.061***	-0.012
Full-time education at 17-18	-0.032**	-0.024*	-0.026	-0.022
Months spent in training	0.436***	0.124	0.445***	0.234
Months spent working	0.483***	0.054	0.412*	0.171
Work or training at 16-17	0.054***	0.005	0.055	0.026*
Work or training at 17-18	0.033**	0.005	0.028	0.006
Month spent in NEET	-0.034	0.131	-0.120	-0.023
NEET at 16-17	0.006	-0.001	0.006	-0.013
NEET at 17-18	-0.001	0.019	-0.002	0.016
Negative change	0.025***	0.001	0.024*	-0.004
Stable pattern	-0.023*	0.010	-0.012	0.008
Very unstable pattern	0.016*	-0.007	-0.006	-0.013

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

¹⁷ As already said, percentage points are the unit for the difference between two percentages.

The strong effect of CE/IAG on training or apprenticeships received from school teachers could be because of hidden pupil characteristics (for example vocational abilities) which are correlated with both the probability to speak with their teachers about alternative training opportunities and also with post-16 destinations. As a check on the causal effect we employ the 'instrumental variable' estimation, which requires the use of variables that are good predictors of the probability of receiving CE/IAG about training from school teachers and uncorrelated with children's post-16 outcomes (after controlling for their observed background variables). The instrumental variables we use are the percentages of pupils receiving CE/IAG (using both single-year and across-year definitions) about training from teachers within each school. These are obviously good predictors of the probability of receiving this CE/IAG at individual level, but are assumed not to be directly related to the young person's outcome, once school and other background characteristics have been controlled for. This approach generally produces effects of CE/IAG about training from school teachers which are small or with low levels of statistical significance. But there are still significant and negative effects on the probability of staying in full time education at 16-17 and at 17-18 and on the number of months spent in full time education and positive effect on the number of months spent working. This seems to imply that the selectivity issue for young people who receive CE/IAG about training or apprenticeships is not a major concern.

As in Chapter 4 we carried out some sensitivity analysis to check whether the results are sensitive to the definition of across-year CE/IAG. As before, our main findings do not modify - adopting different measures of CE/IAG do not affect our main results.

In conclusion, CE/IAG received by young people in years 9-11 does not seem to have strong effects on their post-16 destinations. The effects are small or insignificant except for CE/IAG about training or apprenticeship from school teachers which seems to decrease young people's probability of staying in full-time education and to increase their time spent working or training

5.2 Conclusions

If talking to family and or school teachers about future study had a positive effect on young people's attitudes to school and on their intentions to remain in education, it might have been expected that this impact on their pre-16 opinions might flow on to their post 16 decisions. Arguably it is the ultimate decisions, rather than the initial opinions, which matter more.

But there was very little evidence that CE/IAG about future studies (from any source) made any substantial difference to young people's pattern of activities after 16.

Some young people had spoken to either teachers or Connexions about training or apprenticeships. Given the specialised nature of these consultations, it is perhaps not surprising that those who had discussed this with teachers were less likely to remain in education. They were more likely to take up either training places, or full time work; with no increase in the risk of ending up without any worthwhile activity (NEET). But discussions about future studies with Connexions seemed to make no difference to post 16 outcomes.

6. Is CE/IAG effective for young people at risk of poor outcomes?

The analysis so far has estimated the average impact of CE/IAG provision on young people's opinions and post 16 choices, across all the young people in the age group studied by the LSYPE. It can be argued, though, that some young people, already on high-aiming trajectories, do not need much CE/IAG in the pre-16 period, and that it would make little difference to them. But pupils on low-aiming trajectories might need more CE/IAG, and it should make more of a difference. While family CE/IAG is obviously targeted by parents on their own children, both schools and Connexions have a potential option to target their services on students more at risk of poor outcomes.

Educational attainments are generally predictive of future career and educational choices, and provide one good measure to define subgroups of young people at risk of poor outcomes. Our first subgroup of young people at risk is defined as those with low attainment defined as having a KS2 score in the lowest 20 per cent at the end of year 6.

Our second subgroup of young people at risk is defined as pupils recorded by schools as having special educational needs (SEN) - again about 20% of the whole sample.

6.1 Empirical results

We start by showing that these two sub groups do indeed have poorer outcomes (of the kind analysed in Chapters 4 and 5) than their less disadvantaged comparison groups (Table 6.1). Pupils with low attainments have less positive attitudes to school, a much higher risk of experiencing a period of NEET (especially at age 17-18), and of having very unstable post-16 destination patterns.

Pupils with SEN also have poorer outcomes than their non-SEN comparison group, but they seem to outperform young people with low educational attainments.

Is CE/IAG effective for young people at risk of poor outcomes

Table 6.1 Average of young people's outcomes by subgroups

	High KS2 attainment	Low KS2 attainment	No SEN	SEN
Attitudes to school year 11	33.5	30.9	33.6	30.7
NEET months	0.82	2.76	0.95	2.04
NEET at 16-17	2.1%	4.7%	2.2%	4.4%
NEET at 17-18	7.7%	18.1%	8.3%	15.4%
Very unstable pattern	8.3%	16.9%	8.5%	14.5%

See text and tables in Chapters 4 and 5 for definitions of these outcomes

In Table 6.2 we report the percentages of pupils receiving different types of CE/IAG for the subgroups of young people with high and low previous attainment and with and without SEN. For CE/IAG about future studies, the disadvantaged groups report slightly less CE/IAG from family and from schools, but the same from Connexions.¹⁸ For discussions about training or apprenticeships, the low attainment and SEN pupils were slightly more likely to report CE/IAG from both schools and Connexions.

Table 6.2 Percentages of pupils receiving CE/IAG by subgroups

	High KS2 attainment	Low KS2 attainment	No SEN	SEN
CE/IAG about plans for future studies				
CE/IAG from family	86%	78%	86%	77%
CE/IAG from school	53%	46%	53%	45%
CE/IAG from Connexions	14%	14%	14%	14%
CE/IAG about training or apprenticeships				
CE/IAG from school	30%	32%	29%	35%
CE/IAG from Connexions	24%	26%	24%	27%

¹⁸ Multivariate analysis of the kind reported in Section 3.2 suggests that SEN pupils are rather more likely to report CE/IAG about future studies from Connexions, once other characteristics have been taken into account.

Is CE/IAG effective for young people at risk of poor outcomes

In the following we focus on the subgroups of young people with SEN and with low KS2 attainments and evaluate the effects of across-year CE/IAG about future studies from family, school and Connexions and across-year CE/IAG about training or apprenticeships from school and Connexions. The analytical methods are identical to those employed in Chapters 4 and 5, except that the two subgroups are analysed on their own, rather than as part of the whole sample.

The outcome measures are the same as before, but we restrict our attention to outcomes of special relevance to disadvantaged pupils - attitudes to school in year 11 and a set of especially negative outcomes:

- expect to be unemployed, out of the labour market or not having plans for the future in year 11 (*Expectation post-16: NEET*);
- months spent in NEET after compulsory school from September year 12 to May year 13;
- being NEET at 16-17;
- being NEET at 17-18;
- having a very unstable pattern of post-16 destinations (two or more changes in activity over 21 months after compulsory school from September year 12 to May year 13).

Our results for pupils with low KS2 attainments and for young people with SEN are summarized in Tables 6.3 and 6.4. Table 6.5 summarises the same results for all members of the sample, and can be used to see whether the effects on the two problem groups are greater or less than normal. There is probably more scope to improve the attitudes to school of the subsample of young people at risk of poor outcomes than of the whole sample. This is because the subsample is more likely to have poorer attitudes.

CE/IAG about future studies from school teachers has a significant and positive net effect on attitudes to school in year 11 and this is the only net effect to be relevant. For both disadvantaged subgroups (pupils with low attainments and with SEN) the net effect of this CE/IAG on attitudes is about twice the corresponding effect for the whole sample of young people (see Table 6.5).

Is CE/IAG effective for young people at risk of poor outcomes

Apart from that, we find that CE/IAG inputs have in general small effects on post 16 young people's outcomes – too small for the survey to measure them with any confidence. This same conclusion is as true for the two low performing sub-groups, as well as for the cohort as a whole.¹⁹

Table 6.3 Net effects of across-year CE/IAG for the subgroup of pupils with low KS2 attainments

	Talking about plans for future studies (FTE)			Talking about training/apprenticeships	
	CE/IAG Family	CE/IAG School	CE/IAG Connexions	CE/IAG School	CE/IAG Connexions
Attitudes to school	0.376	3.143	*** -0.007	-0.812	0.045
Expectation post-16: NEET	0.011	-	-0.003	-0.009	0.027
Neet months	-0.340	0.463	-0.894 *	0.287	0.317
Neet at 16-17	-0.051	0.006	-0.020	0.002	0.025
Neet at 17-18	0.005	0.009	-0.039	0.039	0.007
Very unstable pattern	-0.052	0.001	-0.040	0.061	-0.045

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

¹⁹ We also replicated the same types of analysis for the following other subgroups: young people not speaking English as main language, boys, girls, FSM, pupils in school with low average KS3 to KS4 value added. The CE/IAG net effects are always insignificant, but CE/IAG about future studies from school teachers tends to have a significant positive net effect on attitudes to school in year 11.

Is CE/IAG effective for young people at risk of poor outcomes

Table 6.4 Net effects of across-year CE/IAG for the subgroup of pupils with SEN

	Talking about plans for future studies (FTE)			Talking about training/apprenticeships	
	CE/IAG Family	CE/IAG School	CE/IAG Connexions	CE/IAG School	CE/IAG Connexions
	Attitudes to school year 11	-0.397	2.763 ***	-0.567	-0.633
Expectation post- 16: NEET	0.010	0.002	-0.009	0.015	0.011
Neet months	-0.238	0.131	-0.168	-0.087	0.142
Neet at 16-17	-0.003	0.003	-0.030	-0.030	0.018
Neet at 17-18	-0.008	0.017	0.000	0.019	0.009
Very unstable pattern	-0.046	0.005	-0.021	0.000	-0.026

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Table 6.5 Net effects of across-year CE/IAG for the whole sample of pupils

	Talking about plans for future studies (FTE)			Talking about training/apprenticeships	
	CE/IAG Family	CE/IAG School	CE/IAG Connexions	CE/IAG School	CE/IAG Connexions
	Attitudes to school year 11	0.178	1.304 ***	0.014	-0.292
Expectation post- 16: NEET	0.005	0.001	-0.003	0.006	0.005
Neet months	-0.116	-0.074	-0.077	-0.034	0.131
Neet at 16-17	-0.006	0.004	-0.001	0.006	-0.001
Neet at 17-18	-0.013	0.001	-0.005	-0.001	0.019 **
Very unstable pattern	-0.021	0.009	-0.005	0.016	-0.007

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

6.2 Conclusions

It can be argued that young people with poor expectations of educational success are most in need of effective CE/IAG services. We have tested this issue by focussing on two groups of potentially disadvantaged young people – those with low attainment at key stage 2, and those reported to have special educational needs.

This chapter has confirmed that the two sub-groups identified do indeed have poor outcomes in terms of attitudes to school, the risk of NEET, and unstable post-16 careers.

They received less CE/IAG about future studies from family and school teachers (than their more advantaged counterparts); whereas they received the same CE/IAG from Connexions. These disadvantaged young people were also slightly more likely to receive CE/IAG about training or apprenticeships from both schools and Connexions. The context for this issue is that CE/IAG had very few significant effects on outcomes for the cohort as a whole. The analysis of disadvantaged groups indicated that some of the effects may have been a little larger but (given that a much smaller sample is being analysed) remained insignificant in the statistical sense.

7. Discussion and conclusions

7.1 Aims

Many young people's long-term life chances are determined during the transition from education to the labour market. Under the current system, they have to decide at the age of 16 whether to stay at school in the sixth form, continue their full-time education at college, undertake work-related training, or find a job without a training element. The set of choices will be different, but no less important, as the compulsory participation age is raised to 18 over the next few years. Careers education, information, advice and guidance (CE/IAG) is intended to encourage young people to make suitable educational and career decisions, and to minimise the potential costs associated with uninformed and unsuccessful choices.

This research, based on the Longitudinal Survey of Young People in England (LSYPE) has been designed, first, to show how many young people have had advice and guidance from their families, from their schools, and from the Connexions service, during the final three years of compulsory schooling (years 9, 10 and 11). Second, it aims to estimate the effect of CE/IAG in terms of the difference it makes both to young people's attitudes and expectations (while still pre-16), and to their eventual post-16 decisions. Because some types of young person have more access to CE/IAG than others, it is not always clear what decisions they would have taken, if no CE/IAG had been available. Complex analytical techniques have been needed to estimate the net effect of the services provided, taking account of the potential effects of other influences at the level of the individual, the family and the school.

7.2 Headlines

In spite of imperfections in the data available, the research has outlined some clear conclusions. Table 7.1 summarizes our findings about net effects of different types of CE/IAG on young people's outcomes.

Discussion and conclusions

Table 7.1 Net effects of CE/IAG on young people's outcomes

	Talking about future studies		Talking about training/apprenticeships		
	CE/IA				
	CE/IAG Family	G School	CE/IAG Connexions	CE/IAG School	CE/IAG Connexions
Young people's opinions (CE/IAG in year 9, whole sample)					
Attitudes to school Y9	3.196 ***	3.130***	0.196		
Attitudes to school Y10	2.295***	2.219***	0.158		
Attitudes to school Y11	1.643***	1.963***	-0.063		
Young people's opinions (across-year CE/IAG)					
Whole sample of young people					
Attitudes to school Y11	0.178	3.143***	-0.007	-0.812	0.046
Young people with SEN					
Attitudes to school Y11	0.376	2.763***	-0.567	-0.6330	0.702
Young people with low KS2 attainments					
Attitudes to school Y11	-0.189	2.725***	0.129	-0.361	-0.581
Young people's post-16 destinations (whole sample)					
Month spent in NEET	-0.116	-0.074	-0.077	-0.034	0.131
NEET at 16-17	-0.006	0.004	-0.001	0.006	-0.001
NEET at 17-18	-0.013	0.001	-0.005	-0.001	0.019
Months spent in full-time education	0.228	-0.008	0.054	-0.877***	-0.279
Full-time education at 16-17	0.005	-0.005	0.017	-0.059***	-0.004
Full-time education at 17-18	0.006	-0.023	-0.009	-0.032**	-0.024*
Months spent working	-0.162	-0.124	0.219	0.483***	0.054
Months spent in training	0.102	-0.019	-0.234*	0.436***	0.124
Work/ training at 16-17	0.001	0.001	-0.015	0.054***	0.005
Work/ training at 17-18	0.007	0.022*	0.014	0.033**	0.005
Post-16 changes in the main activity (whole sample)					
Negative change	0.015	0.003	0.000	0.025***	0.001
Stable pattern	0.006	-0.029	0.001	-0.023*	0.010
Very unstable pattern	-0.021*	0.009	-0.005	0.016*	-0.007

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively. We consider across-year CE/IAG except in the first three rows where we consider CE/IAG received in year 9.

The headlines are:

6. Educational advice from home and school impacts on young people's opinions while still at school (see Table 7.1 first two blocks).
7. But it is very difficult to detect any lasting effect on the choices they actually make after reaching the minimum school leaving age (see Table 7.1 last two blocks).
8. Advice from Connexions has a negligible impact on both short-term opinions and on eventual choices (see third column in Table 7.1). However, we need to bear in mind that information regarding careers and training is not the only focus of IAG delivered by Connexions.
9. Advice about training opportunities seems to have a positive influence on participation in work and training (see fourth and fifth columns in Table 7.1).
10. There is some evidence that CE/IAG from Connexions provision is greater (see Table 3.8), and that the effects are stronger, for low achievers, but the differences are not large (see for example the effect on attitudes to school in year 11 in the second block in Table 7.1).

These five headlines are discussed in more detail in the following paragraphs.

Educational advice from home and school impacts on young people's opinions while still at school

Almost all young people said that they had talked to their family about future study choices during years 9, 10 or 11; a substantial majority had talked about this to teachers or other school staff.

Not surprisingly, those who had had a lot of such advice had more positive attitudes to school, and were more inclined to expect to remain in education post-16, than those who had had little or none. The apparent effects of these two sources of CE/IAG were similar in magnitude, and remained significant after taking account of other influences on both CE/IAG and on young people's opinions.

Discussion and conclusions

Both sources shared a similar pattern over time. Advice reported during year 9 had a strong positive effect on opinions recorded at the end of year 9, but the effect of early advice weakened as time went on through years 10 and 11. Also, advice received in year 10 had less of an immediate effect than year 9 advice; and year 11 advice was less effective again. In fact opinions held in year 11 remained more strongly affected by advice given in year 9 than by advice given in year 11, even though the effect of the former had withered over the period.

The overall conclusion is that CE/IAG from family and school seemed to have positive effects on young people's educational perspectives during the pre-GCSE period. 'Seemed to' because we cannot be sure whether LSYPE respondents' narrative of the guidance they received from these sources was not coloured, in part, by their attitudes and expectations at the time they took part in the survey. If those with enthusiastic underlying views of education tended to talk up the reception of CE/IAG, while those with pessimistic or cynical underlying views tended to talk it down, then that could produce a similar pattern of results to those just summarised. In the end, the pattern of provision does not allow the analysis to nail down the CE/IAG effect with absolute certainty. The signals are nevertheless encouraging to the provision of CE/IAG both directly in schools and indirectly through parents.

It is very difficult to detect any lasting effect of CE/IAG on the choices young people actually make after reaching the minimum school leaving age

At first sight young people who received CE/IAG from their family in each of the last three years of compulsory school were significantly more likely to be in full-time education post-16 than those who lacked this kind of family support. The same was true (only less so) when young people who had lots of CE/IAG from teachers are compared with those who had little or none.

But it turned out that most of this apparent effect could be explained by the fact that the types of young people who had most advice and guidance were the same types of young people who had the best chance of remaining in full-time education anyway. Once individual, family and school characteristics had been taken into account, the effect of parental CE/IAG was still positive, but too small to be measured with confidence; the effect of teacher CE/IAG had disappeared altogether. The formal conclusion is that neither family- nor school-provided CE/IAG had any effect on actual post 16 outcomes.

Discussion and conclusions

The contrast, then, is between the apparently beneficial effect of these two sources of CE/IAG on young people's short-term opinions, and the apparently non-existent effect on their actual behaviour. There are various possible explanations for this apparent inconsistency. Perhaps the dwindling effect of CE/IAG as the years pass (as observed directly between years 9 and 11) continues through to years 12 and 13, so that the initial impact has reduced to nil by the end of the sequence. Perhaps the marginal improvement in pre-16 attitudes is not strong enough to affect post-16 outcomes. Perhaps the structural influences on post-16 outcomes (eg GCSE results, local educational and employment opportunities) are so powerful that there is no room for marginal shifts in attitudes and expectations to play any part.

Whatever the process at work, the fact remains that optimistic conclusions about the impact of CE/IAG drawn during the pre-16 period are not confirmed in the post-16 period. It is not uncommon for evaluations of advice services to conclude that the providers and receivers of advice feel positively about the experience; and that hopes for a positive outcome are raised. But it is much more difficult to establish that those hopes are realised in terms of an actual change in the desired outcomes.

The issue for discussion in this context is whether family- and school-provided CE/IAG should be judged at least partially successful because of the short-term positive effect on opinions identified by this analysis; or whether the lack of any identifiable impact on the actual decisions at issue suggests a less optimistic conclusion.

Advice from Connexions has a negligible impact on both short-term opinions and on eventual choices

The findings discussed so far in this concluding section have been confined to the effects of CE/IAG provided by family members and by school staff – people who are in touch with young people all the time. We now turn to CE/IAG provided by Connexions which is a specialist source of careers information, advice and guidance dedicated to young people, and set within a much wider IAG role. By its nature CE/IAG from Connexions is likely to be episodic, in contrast to the continuous supply of advice available from parents, and potentially available from teachers. Because it is episodic, the supply is likely to be more limited (but the treatment potentially more concentrated and provided as and when needed); and survey respondents may be more likely to recall accurately whether they did or did not take part in any such sessions. (On the other hand, the variations in the question sequences in waves 1, 2 and 3 of the LSYPE leave it rather less than clear exactly who did or did not receive CE/IAG over years 9 through 11.)

As expected, fewer young people said that they had CE/IAG from Connexions in each of years 9, 10 and 11, than said the same about CE/IAG from within their school. Very few had had Connexions advice in all three years running up to the minimum school leaving age.

Whereas the analysis strongly suggested that CE/IAG from family and school affected young people's opinions, in the direction of improving their attitudes to school and increasing their expectations of staying on after 16, equivalent measures of the short-term effect of Connexions were small or negligible. There is no significant evidence that those who spoke to Connexions advisors were any more positively inclined towards school or continuing education than those who did not.

Similarly, the apparent contribution of Connexions CE/IAG to boost staying-on rates was much smaller than those observed for family- and school-provided CE/IAG, even before controlling for other factors, and in any case insignificant. Taking account of other influences only reinforced the conclusion that the Connexions effect was negligible.

Discussion and conclusions

The apparent lack of any effect of Connexions on either short-term attitudes or on actual long-term decisions is surprising and disappointing. The finding needs to be interpreted with some care.

- It is possible that alternative measures of Connexions CE/IAG derived from the LSYPE data might provide alternative insights into the effects of varying patterns of experience. But we have undertaken a range of sensitivity tests, none of which alter the main conclusion.
- Similarly, we have looked for evidence that Connexions is more effectively targeted on potentially disadvantaged young people, but there is no strong evidence that the impact varies between groups.
- It is difficult to prove that something does not happen. In this case, we can say that there is no evidence of a Connexions effect; but we cannot state positively that there is no effect.
- Policy and practice change. In fact Connexions was a national service delivered by 47 partnerships when the LSYPE sample was passing through years 9, 10 and 11 (in 2004, 2005 and 2006). The service was broken up and assigned to local authorities' control in 2008, but it continued to be a national service. This might lead to more variable, but perhaps better targeted, provision. But the onus will be on future research to establish that the new service makes a difference – it cannot be assumed that the apparently negative findings of the current study no longer apply.

Advice about *training* opportunities appears to have a negative influence on future participation in *education*. But there are some signs that it may reduce the number of school leavers who fail to take part in any training or employment.

The findings reviewed so far relate to survey questions in which LSYPE respondents were asked if they had 'talked about plans for future studies' with any of the three sources. CE/IAG on this topic might naturally lead to 'future study' and is expected to be associated with higher staying-on rates. But other survey questions asked whether the respondent had talked to people about 'getting a training place or apprenticeship'. CE/IAG on this topic might naturally lead to more young people taking up work-related training.

Young people who talked to a teacher or other school staff member about training opportunities seem more likely to spend time in work or training than those who had not

had such a discussion. There is an obvious difficulty of disentangling cause and effect, since young people who had decided to leave school might be the ones who seek, or are offered, advice about training. But the finding survives multivariate analysis controlling for the individual, family and school characteristics which are known to be associated with post school outcomes. It still survives (more weakly) when considering instrumental variables' estimation, ie when replacing the amount of CE/IAG reported by the individual with its best predictor computed using the frequency of training advice within the school and the child's background variables. So the signs are that schools active in providing advice about training and apprenticeships encourage some of their pupils to consider employment and training routes as an alternative to staying on in education.

Advice about training provided by Connexions follows a similar pattern, but more weakly. It is not possible to identify any effect of Connexions advice in this area with any confidence.

Given that advice on training might be counter-productive to the main aim of getting more young people to stay on in education, it might nevertheless be hoped that good advice might improve the rate at which those leaving school end up with training places. It is difficult to interpret the findings, but there is at least an indication that training advice provided by schools has the beneficial effect of reducing the amount of time 16-18 year olds spend as NEET, *relative* to the amount of time they spend in apprenticeships or employment.

There is some evidence that CE/IAG provision is greater, and that the effects may be stronger, for low achievers, but the differences are not large enough to measure accurately.

It can be argued that many young people in years 9 to 11 are already clearly on track to further and higher education. They do not need information, advice and guidance at this stage, and it would make no difference to their immediate post-16 choices. According to this argument, the role of CE/IAG in the pre-16 period should be evaluated for its impact on young people who might otherwise be at risk of abandoning the educational trajectory at the first opportunity.

The research has tested this more targeted view of the impact of CE/IAG by focussing on two overlapping groups of young people known to be at risk of poor outcomes:

Discussion and conclusions

those with low KS2 attainments at the end of year 6; and those reported to have special educational needs.

Members of these disadvantaged groups were slightly less likely to have talked to parents or teachers about future studies, than their non-disadvantaged counterparts, but the availability of Connexions advice about educational choices was about the same for disadvantaged and non-disadvantaged pupils. The disadvantaged groups were consistently more likely to report advice about training opportunities from both school and Connexions, although the differences were nowhere near large enough to suggest that such CE/IAG is heavily concentrated on low achievers.

A technical difficulty is that these indicators of disadvantage (low KS2 attainments and SEN) are already so predictive of weak post-16 trajectories that it is difficult to find any other sets of characteristics which contribute to an explanation of variations in outcomes within these groups. The multivariate analysis suggested that disadvantaged pupils who had discussed future studies with any of the three potential sources of CE/IAG spent less time in NEET than similarly disadvantaged pupils who had not. The size of these effects often appeared to be larger than those observed for young people as a combined group. But in no case was the size of the effect large enough to be measured with confidence as better than zero.

This means that CE/IAG may have a greater impact on those young people most in need of it – but the LSYPE data do not provide robust support for such an interpretation.

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²⁰ Not that not all of these references are directly cited in the text.

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Appendix A: Survey questions used to measure CE/IAG

Talking to Connexions Advisors

This variable is defined separately for waves 1, 2 and 3 and is based on the following questions.

- Wave 1
Have you ever talked to a Connexions Service Personal Advisor (PA) either in person, on the phone or as part of a group?
- Wave 2
Since we last spoke to you in [month] of last year have you talked to a Connexions Service Personal Advisor (PA) either in person, on the phone or as part of a group?
- Wave 3
Since we last spoke to you in [month] of last year have you talked to a Connexions Service Personal Advisor either in person, on the phone or as part of a group? This does not include occasions when a Connexions Service Personal Advisor has just given a talk. (wave 3)

Talking to family members, Connexions people or teachers about plans for studying in the future

These variables are defined separately for waves 1, 2 and 3 using the following LSYPE questions.

- Wave 1
Thinking about your plans for studying in the future, how often do you talk about these
 - (a) With a Connexions Service Personal Advisor (PA) or someone else from Connexions?
 - (b) With teachers as part of a lesson?
 - (c) With teachers outside lessons?
 - (d) With members of your family e.g. your mum or dad, a brother or a sister?

The possible answers are: (1) Not at all, (2) Not very often, (3) A little, (4) Quite a lot, (5) A lot, and Don't know.

Appendix A: Survey questions used to measure CE/IAG

▪ Wave 2

Thinking about what you might do after you finish Year 11, how often do you talk about this

- (a) With a Connexions Service Personal Advisor (PA) or someone else from Connexions?
- (b) With teachers as part of a lesson?
- (c) With teachers outside lessons?
- (d) With members of your family e.g. your mum or dad, a brother or a sister?

The possible answers are: (1) Not at all, (2) Not very often, (3) A little, (4) Quite a lot, (5) A lot, and Don't know.

▪ Wave 3

Which, if any, of the following people have you talked/did you talk to in year 11 about whether or not to stay on in full time education?

1. A careers adviser or careers teacher at your school
2. Other teachers at your school
3. A Connexions Personal adviser
4. Someone else at Connexions
5. Someone else (specify)

None of these

Don't know

Which of the following have you talked/did you talk to in year 11 about whether or not to stay on in full time education?

1. Parent
2. Older brother or sister
3. Other family member
4. Friends

None of these

Don't Know

Talking to Connexions people or teachers about getting a training place or apprenticeship

These variables can be derived separately for wave 2 and 3 from the questions below.

Appendix A: Survey questions used to measure CE/IAG

- Wave 2

Since you started year 10, have you talked to anyone about starting an apprenticeship or getting a training place to learn a trade or skill after you finish Year 11?

People who answer yes are asked also

Which of the following people have you talked to about this?

1. My parent(s)
2. Other family member (brother, sister, uncle etc.)
3. School careers advisor
4. Teacher at school
5. A Connexions Personal Advisor
6. Someone else from Connexions
7. A local employer
8. Someone else (SPECIFY)

Don't know

Refused

- Wave 3

Which, if any, of the following have you talked/did you talk to in year 11 about the possibility of you getting a training place or apprenticeship?

1. A careers adviser or careers teacher at your school
2. Other teachers at your school
3. A Connexions Personal adviser
4. Someone else at Connexions
5. Someone else (specify)

None of these

Don't know

Appendix B: Description of control and outcomes variables

Personal demographic variables

Ethnicity	W1	White, Indian, Pakistan, Bangladesh, Caribbean, African, Mixed, Others.
Gender	W1	Boys and girls
Language spoken at home	W1	English is not main language, English is main language (including bilingual)
Number of sibling	W1	Number of siblings living in the household
Single parent household	W1	single parent household based on the (natural, step, adoptive or foster) parents of the young person.

Special educational need

SEN	W1	Whether the young person was ever identified (by anyone) as having special educational needs
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Family background

Parental occupation position	W1	Highest occupation in the family: Never worked/long term unemployed Routine occupations High managerial and professional occupation Other types of occupation
Education	W1	Highest qualifications obtained by the young

Appendix B: Description of control and outcome variables

person's mother and father:
 No qualification
 Medium level of education
 Degree or equivalent

Home resources

Equivalised household's income	W1	Equivalised household income using OECD1 scale
Internet at home	W1	Whether can access internet from home
Computer at home	W1	Whether have home computer in household
Free school meal	W1	Free school meal eligibility
Type of house tenure	W1	Owned (outright, mortgage, bank loan) Rented from a council or new town or from a housing association Rented privately, rent free, or others
Private tuition fees	W1	Whether in the last twelve months MP has paid for private classes in subjects also taught at YP's school
Self-reported measure on how well household is managing on income	W1	Dummy for people getting into difficulties

School's composition and characteristics

Sixth form	2004	Whether school has a Sixth form
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Quality of the school

	2004	
Ofsted	2004	More recent Ofsted evaluation available

Appendix B: Description of control and outcome variables

Pupil-teacher ratio	2004	Pupil: teacher ratio - 2004
Key Stage 2 average point score	2004	School level KS2 average point score for contextual value added - KS3 cohort

Composition

Students eligible for free school meals	2004	% of pupils known to be eligible for free school meals
Students with Special needs	2004	% of pupils with special needs with statements.
Language	2004	% of pupils whose first language is known or believed to be English
Ethnicity	2004	Percentage of pupils classified as White, as Mixed, as Asian, as Black, as other.

Neighbourhood characteristics

Indices of Multiple Deprivation	2004	IMD score
Income Deprivation Affecting Children Index	2004	IDACI score

Past school attainments

Key Stage 2 average point score	ks2 average point score (using fine grading) for contextual value added
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Parents' attitudes and parents-child relationship

Parenting style: family interaction and quality relationship MP-YP

Parental discipline	W1	Frequency parent-child talking about school report (never-every time)
Parenting style towards family togetherness (scale 1-6)	W1	How often had family meal in last 7 days How often spent evening together at home as family How often go out together as a family (excluding shopping)

Parental educational attitudes

Appendix B: Description of control and outcome variables

Parental attitudes toward school (scale 1-4)	W1	Nowadays you need qualifications in order to get a job worth having
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Parental involvement in school life	W1	How personally involved main parent feels in YP's school life.
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Parental educational aspirations and expectations

Parental educational aspirations	W1	What would you like YP to do at 16? Stay in FTE education
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Parental expectations	W1	Likelihood of YP going into Higher Education
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Outcomes

Intermediate Outcomes

Student attitudes toward school

Attitude toward school	W1	I am happy when I am at school
(range from 0-48) is given by the sum of answers given to a series of questions on how the young person feels about school	W2	The work I do in lessons is interesting to me
	W3	On the whole I like being at school
		Most of the time I don't want to go to school
		In a lesson, I often count the minutes till it ends
		I am bored in lessons
		School is a waste of time for me
		The work I do in lesson is a waste of time
		School work is worth doing
		I work as hard as I can in school
		I get good marks for my work
	People think my school is a good school	

Aspiration/Intention to progress to higher education after year 11	W1	Stay on in FTE
	W2	Leave FTE but return to FTE

Appendix B: Description of control and outcome variables

W3 Work full-time
Learn a trade/training
Others
Don't know

Post-16 outcomes

Destination post-16

		Full-time education
Main activity at 16/17	W4	NEET Work or training

Destination post-17

		Full-time education
Main activity at 17/18	W5	Neet Work or training
Months spent in full time education	W5	Number of months spent in full time education from Sep 2006 to May 2008
Months spent working	W5	Number of months spent in work from Sep 2006 to May 2008
Months spent in training/apprenticeships	W5	Number of months spent in training or apprenticeship from Sep 2006 to May 2008
Months spent being NEET	W5	Number of months spent being NEET training or apprenticeship from Sep 2006 to May 2008

Appendix C: Comparability of CE/IAG questions

In the following table we report the percentage of people receiving CE/IAG from various sources separately by year. CE/IAG seem to have different year-patterns by different sources and this may in part reflect changes in the questions used to collect information on CE/IAG in the LSYPE.

Table C.1 Percentage of young people receiving CE/IAG by year

	Year 9	Year 10	Year 11
CE/IAG about plans for future studies			
from family members	96	96	90
from school teachers	89	86	65
from Connexions advisors	33	42	69
from Connexions people	32	44	20
CE/IAG about training or apprenticeship			
from school teachers		12	20
from Connexions people		4	21

Note: Connexions people include advisors or anybody else from Connexions.

The survey questions used to collect information on CE/IAG about plans for future studies from family members, school teachers and Connexion people are not comparable across years. The major change is in year 11 when separate questions for each type of CE/IAG were replaced with multiple choice questions (see Appendix A). So for example young people were asked, “Which, if any, of the following people have you talked in year 11 about whether or not to stay in full time education?” and the possible multiple choices were (1) a careers adviser or careers teacher at your school, (2) other teachers at your school, (3) a Connexions personal advisor, (4) someone else at Connexions, (4) Someone else (specify).

18% of young people were not able to answer to the above multiple question and simply said they did not know. It seems therefore that this multiple choice question was not easy to answer. This may have caused underreporting and especially so for the less clearly identifiable CE/IAG such as from Connexions people. For this reason we suspect that the sharp decrease of CE/IAG from Connexions people from year 10 to year 11 in Figure 3.1 is more to attribute to a change in the survey questions than to a genuine decline in CE/IAG.

Appendix C: Comparability of CE/IAG questions

We suspect that CE/IAG about future studies from school teachers may also have been under-reported in year 11, but we expect a smaller underreporting bias than in the case of CE/IAG from Connexions people. This expectation is again because of the multiple-choice questions used in year 11, which students tend to answer by indicating just one or two CE/IAG sources, not necessarily all the CE/IAG sources used. The under-reporting may especially affect Connexions because it is the least frequently used and the last named in the list of possible choices.

On the other hand, we suspect an under-reporting of CE/IAG about training in year 10 with respect to year 11. This is again because of changes in the questions used in the LSYPE across years. Young people are asked to say who among a list of people they talked about training or apprenticeships, and this list is much shorter in year 11 than in year 10. In year 10 it includes parents and other family members, teachers, advisors, Connexions people and local employers; whereas in year 11 it includes only teachers/advisors and Connexions people (see Appendix A). Furthermore, Connexions advisors and other people from Connexions are the third and fourth choices in the list of options in year 11, whereas they are the fifth and sixth choices in year 10. Similarly, school advisors and teachers are the first and second choices in the list of options in year 11, whereas they are the third and fourth choices in year 10.

To take account of these comparability issues in our analysis we decided to:

1. to consider only CE/IAG from Connexions 'advisors'²¹ and not to use the variable CE/IAG from Connexions 'people',
2. to check whether using information on CE/IAG about future studies only for years 9 and 10 (dropping the more "problematic" year 11) results change.

The good news is that results did not change see Section 4.3.

²¹ This variable measures whether a pupil talked to Connexions personal advisor either in person, on the phone or as part of a group, and it is collected in the LSYPE through additional questions, which are not multiple-choice questions and are more comparable across years (see Appendix A for more details on these questions).

Appendix D: Methods of estimating the CE/IAG effect

We use two main methods to estimate the CE/IAG effects on young people's outcomes. These are the regression and the propensity score matching methods.

'Regression' involves calculating an equation (or formula) which estimates variations in the average outcome (for example young people's scores on a scale of attitudes to school, or their probability of remaining in education post-16) according to a series of known characteristics of the young people being analysed. If the only predictor variable used in the equation was receipt of CE/IAG, then that would provide an estimate of what we refer to the gross-effect – the raw difference in outcomes between young people who did and did not receive CE/IAG. But if the equation also calculates the variations between young people with all sorts of other variable characteristics (by family background, previous school achievement and so on), then the remaining difference between those who did and did not receive CE/IAG (taking account of – or 'controlling for' - these other characteristics) is referred to as a net effect. We use this formula to predict the expected difference in outcomes between identical young people (children with the same characteristics) receiving and not receiving CE/IAG.

An advantage of regression models is that it allows us easily to consider different sources and timing of CE/IAG at the same time, and to identify which matter more. So, for example it is possible to test whether early provision of CE/IAG is more effective than late provision and if CE/IAG received from family members is more important than CE/IAG from teachers and Connexions advisors.

Although regression analysis has the advantage of flexibility, it is not fully rigorous as a measure of causal effects. As a test of the robustness of the results, we have also used propensity score matching techniques to test key findings. This is a two-stage procedure. First, a regression equation is used to predict the probability that any individual will have received CE/IAG, on the basis of the series of variable characteristics (by family background, previous school achievement and so on). Then the analyst constructs two sub-samples, both with exactly the same *chance* of receiving CE/IAG, one of which *actually had* received it, and the other *actually had not*. Comparing the outcomes for these two samples isolates an CE/IAG effect, unconfounded by the potential influence of other factors. The propensity score estimation consists of matching people who receive CE/IAG with people who do not

Appendix D: Methods of estimating the CE/IAG effect

receive it but have potentially the same probability of receiving it. The comparison of the average outcome between pupils receiving CE/IAG and the matched people who do not receive it provides an estimate of the effect of CE/IAG on potential CE/IAG receivers.

Interpretation of the outputs from multivariate analysis as measures of causal relationships requires that there are no unobserved (or omitted) characteristics which are correlated with both young people's CE/IAG receipt and with the outcomes being analysed. To make this assumption credible we consider a large set of potential factors explaining young people's outcomes (see Section 2.5).

Appendix E: Determinants of CE/IAG

Table E.1 Regression models explaining across-year CE/IAG: significance of groups of predictor variables

Determinants of the likelihood of receiving CE/IAG					
	Talking about plans for future studies (FTE)			Talking about training/apprenticeships	
	CE/IAG Family	CE/IAG School	CE/IAG Connexions	CE/IAG School	CE/IAG Connexions
Demographic			**	***	
Family background	**			***	**
Home resources					
Parents' role	***			***	
School			***		
Neighbourhood					
Educational attainment				**	**
SEN	***		***		
All variables	***	*	***	***	*
No Obs	7335	7292	7307	7343	7343

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Appendix E: Determinants of CE/IAG

Table E.2 Regression models explaining year specific CE/IAG on future studies from family members: significance of groups of predictor variables

Determinants of the likelihood of receiving CE/IAG			
Family			
Talking about plans for future studies (FTE)			
	year 9	year 10	year 11
Demographic	**		
Family background			**
Home resources			
Parents' role	***	***	
School		*	
Neighbourhood			
Educational attainment	***	**	
SEN		**	
All variables	***	***	
No Obs	9410	8370	8263

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Appendix E: Determinants of CE/IAG

Table E.3 Regression models explaining year specific CE/IAG on future studies from school teachers: significance of groups of predictor variables

Determinants of the likelihood of receiving CE/IAG School			
Talking about plans for future studies (FTE)			
	year 9	year 10	year 11
Demographic			
Family background			
Home resources			
Parents' role	***	***	
School	*		
Neighbourhood			
Educational attainment	***	*	
SEN	**		
All variables	***	***	
No Obs	9386	8340	8263

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Appendix E: Determinants of CE/IAG

Table E.4 Regression models explaining year specific CE/IAG on future studies from Connexions Advisors: significance of groups of predictor variables

Determinants of the likelihood of receiving CE/IAG Connexions			
Talking about plans for future studies (FTE)			
	year 9	year 10	year 11
Demographic	***	**	
Family background	**	**	
Home resources			
Parents' role	*		
School	***	**	
Neighbourhood	**	**	
Educational attainment	**		
SEN	**	**	
All variables	***	***	
No Obs	9415	8373	8225

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Appendix E: Determinants of CE/IAG

Table E.5 Regression models explaining year specific CE/IAG on training/apprenticeships from school teachers and Connexions people: significance of groups of predictor variables

	Determinants of the likelihood of receiving CE/IAG from School CE/IAG from Connexions Talking about training/apprenticeships			
	year 10	year 11	year 10	year 11
Demographic	***		***	
Family background	**			**
Home resources				
Parents' role	***		***	
School	***		***	
Neighbourhood			*	
Educational attainment	***		*	*
SEN				
All variables	***		***	
No Obs	8373	8263	8373	8263

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Appendix F: CE/IAG effects on young people's opinions

Table F.1 Gross and net effects of CE/IAG from family members on intention to work full-time

	CE/IAG received from family members in		
	(year 9)	(year 10)	(year 11)
Gross effect on intention to work full time			
year9	-0.067	***	
year10	-0.074	***	-0.022 **
year11	-0.021	**	-0.034 *** 0.001
Net effect on intention to work full time			
year9	-0.027	**	
year10	-0.046	***	0.005
year11	0.007		-0.014 0.004

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Table F.2 Gross and net effects of CE/IAG from school teachers on intention to work full-time

	CE/IAG received from school teachers in		
	(year 9)	(year 10)	(year 11)
Gross effect on intention to work full time			
year9	-0.040	***	
year10	-0.039	***	-0.015 ***
year11	-0.027	***	-0.017 *** -0.001
Net effect on intention to work full time			
year9	-0.017	**	
year10	-0.015	**	-0.007
year11	-0.018	**	-0.008 0.002

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Appendix F: CE/IAG effects on young people's opinions

Table F.3 Gross and net effects of CE/IAG from Connexions advisors on intention to work full-time

CE/IAG received from Connexions advisors in			
	(year 9)	(year 10)	(year 11)
Gross effect on intention to work full time			
year9	-0.001		
year10	-0.007	** 0.000	
year11	-0.005	0.000	-0.001
Net effect on intention to work full time			
year9	0.000		
year10	-0.006	-0.006	
year11	-0.003	-0.006	-0.003

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Table F.4 Gross and net effects of CE/IAG from family members on intention to take a training place or apprenticeship

CE/IAG received from family members in			
	(year 9)	(year 10)	(year 11)
Gross effect on intention to take a training place			
year9	-0.036	***	
year10	-0.020	* -0.008	
year11	-0.019	0.008	0.014
Net effect on intention to take a training place			
year9	-0.026	**	
year10	0.032	** 0.020	
year11	0.013	-0.003	0.012

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Appendix F: CE/IAG effects on young people's opinions

Table F.5 Gross and net effects of CE/IAG from school teachers on intention to take a training place or apprenticeship

CE/IAG received from school teachers in				
	(year 9)		(year 10)	(year 11)
Gross effect on intention to take a training place				
year9	-0.030	***		
year10	-0.026	***	-0.016	**
year11	-0.033	***	-0.001	0.005
Net effect on intention to take a training place				
year9	0.002			
year10	-0.002		-0.008	
year11	-0.002		-0.001	0.006

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Table F.6 Gross and net effects of CE/IAG from Connexions advisors on intention to take a training place or apprenticeship

CE/IAG received from Connexions advisors in				
	(year 9)		(year 10)	(year 11)
Gross effect on intention to take a training place				
year9	0.001			
year10	-0.002		0.014	***
year11	0.003		0.006	0.003
Net effect on intention to take a training place				
year9	0.001			
year10	0.001		0.007	
year11	-0.001		0.006	0.004

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Appendix F: CE/IAG effects on young people's opinions

Tale F.7 Gross and net effects of CE/IAG from family members on the probability of not knowing what he/she wants to do in the future

CE/IAG received from family members in					
	(year 9)		(year 10)		(year 11)
Gross effect on the probability of not having plan yet					
year9	-0.065	***			
year10	-0.042	***	-0.061	***	
year11	0.001		-0.035	***	-0.001
Net effect on the probability of not having plan yet					
year9	-0.027	**			
year10	-0.037	***	-0.066	***	
year11	0.019	*	-0.013		0.006

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Table F.8 Gross and net effects of CE/IAG from school teachers on the probability of not knowing what he/she wants to do in the future

CE/IAG received from school teachers in					
	(year 9)		(year 10)		(year 11)
Gross effect on the probability of not having plan yet					
year9	-0.036	***			
year10	-0.025	***	-0.038	***	
year11	-0.007		-0.013	***	-0.002
Net effect on the probability of not having plan yet					
year9	-0.017	**			
year10	-0.012		-0.028	***	
year11	0.012	*	-0.004		0.002

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Appendix F: CE/IAG effects on young people's opinions

Table F.9 Gross and net effects of CE/IAG from Connexions advisors on the probability of not knowing what he/she wants to do in the future

	CE/IAG received from Connexions advisors in		
	(year 9)	(year 10)	(year 11)
Gross effect on the probability of not having plan yet			
year9	-0.010	**	
year10	-0.002	-0.008	**
year11	-0.004	0.000	0.005
Net effect on the probability of not having plan yet			
year9	-0.005		
year10	0.001	-0.005	
year11	-0.004	0.003	0.005

One, two and three stars indicate statistical significance at 90%, 95% and 99% respectively.

Ref: DFE-RR019

ISBN: 978-1-84775-781-4

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July 2010