Education Endowment Foundation

ASCENTS 121 SUPPORT FOR SCIENCE

Evaluation Report

April 2021

Berenice Scandone, Helen Burridge, Helena Takala,
Tom Bristow, Vainius Bartasevicius and Valdeep Gill

NatCen
Social Research that works for society

The Education Endowment Foundation (EEF) is an independent grant-making charity dedicated to breaking the link between family income and educational achievement, ensuring that children from all backgrounds can fulfil their potential and make the most of their talents.

The EEF aims to raise the attainment of children facing disadvantage by:

- identifying promising educational innovations that address the needs of disadvantaged children in primary and secondary schools in England;
- evaluating these innovations to extend and secure the evidence on what works and can be made to work at scale; and
- encouraging schools, government, charities, and others to apply evidence and adopt innovations found to be effective.

The EEF was established in 2011 by the Sutton Trust as lead charity in partnership with Impetus Trust (now part of Impetus - Private Equity Foundation) and received a founding £125m grant from the Department for Education. Together, the EEF and Sutton Trust are the government-designated What Works Centre for improving education outcomes for school-aged children.

This project was funded as part of the Improving Science Education scheme, which was jointly funded by Wellcome and the Education Endowment Foundation and launched in December 2017. This scheme aimed to generate new evidence about science teaching, with the particular aim of closing the science attainment and progression gap that exists between disadvantaged pupils and their more affluent peers.

For more information about the EEF or this report please contact:

Jonathan Kay
Education Endowment Foundation
5th Floor, Millbank Tower
21–24 Millbank
SW1P 4QP

0207 802 1653

jonathan.kay@eefoundation.org.uk

www.educationendowmentfoundation.org.uk

Contents

About the evaluator

The project was independently evaluated by a team from NatCen Social Research: Berenice Scandone, Arnaud Vaganay, Valdeep Gill, Helen Burridge, Tom Bristow, Helena Takala, Daniel Phillips, Rukmen Sehmi, Vainius Bartasevicius, and Ellen Broomé.

The lead evaluator was Arnaud Vaganay. Analysis and reporting were managed by Berenice Scandone.

Contact details:

Berenice Scandone
NatCen Social Research
35 Northampton Square
London EC1V 0AX
Email: **Berenice.Scandone@natcen.ac.uk**

Acknowledgements

We would like to thank the programme developers and the project leads at partner universities for the collaboration on this project, particularly Ian Abrahams and Rachael Sharpe. We are also especially grateful to the school project leads, pupils, and mentors who took part in this study for contributing their time and views. Finally, many thanks go to colleagues at the EEF, particularly Camilla Nevill, Celeste Cheung, and Joe Collin for their support throughout.

Executive summary

The project

The ASCENTS 121 Support for Science programme aims to improve pupils' GCSE science attainment, targeting Year 11 pupils who are eligible for free school meals and predicted to achieve a grade 3–5 in their double award science GCSE. It consists of weekly one-hour academic mentoring sessions delivered by local STEM undergraduate mentors over 23 weeks and one six-hour revision session held at a local university. The programme was developed by the University of Lincoln, which also led its delivery in this trial alongside four partner universities: the University of Leeds, University of Liverpool, UCL's Institute of Education, and the University of York. Academic mentoring sessions were intended to cover content from the GCSE science curriculum and topics were chosen by pupils. Sessions were delivered outside of school hours (before or after school) in classrooms or labs under the supervision of a teacher. Mentors were required to attend two days of training at their university that covered procedural information related to the intervention, such as DBS and paperwork checks, mentoring and safeguarding, as well as a short briefing session at their allocated school. If needed, they could access support throughout the project from the supervising teacher at their school.

The study was initially designed as an efficacy trial randomised at the pupil level in which a total of 845 pupils from 46 schools participated. A treatment group received ASCENTS while a control group received business as usual support. Due to the COVID-19 pandemic and consequent changes in GCSE grading, it was not possible to complete the impact assessment. While almost all of the programme was delivered (excluding the final three weeks of tutoring and the six-hour revision day), the evaluation could not use 2020's GCSE grading system to reliably estimate the impact of the intervention. This report therefore focuses on the findings of the implementation and process evaluation (IPE) which involved interviews with university project leads and school teachers, observations of mentor training, and surveys with teachers, mentors, and mentees. The trial took place between October 2018 and October 2020 and was funded by the EEF and the Wellcome Trust as part of the Improving Science Education Round.

Key conclusions
1. The intervention was very well-received by school leads, mentees, and mentors and was implemented as intended with little variation across settings.
2. Key perceived benefits for mentees, as reported by mentees and school leads, included increased understanding of science, enjoyment and interest in science, confidence (for example, asking questions in class), social skills, and maturity in interacting with adults. Unfortunately, due to the cancellation of GCSE exams in 2020, we are not able to estimate the impact of ASCENTS on mentees' academic attainment.
3. Key perceived benefits for mentors included feeling good about helping their mentee and valuable work experience that improved their CV. More than half (53.9%) said it had increased their interest in teaching 'somewhat' or 'a lot' and 64.4% said the same about careers supporting disadvantaged young people.
4. A good relationship between mentors and mentees and a positive experience of mentoring were seen to be important to achieving the intended outcomes. Mentor preparation and mentee engagement appeared to facilitate a positive experience of mentoring. Mentees were generally highly engaged in the programme and during mentoring sessions. Their engagement was supported by the one-to-one format and the onus on the mentee to lead the session content. Mentees generally liked the opportunity to decide which topics to cover in the sessions.
5. Some school leads thought there were limits to the mentee-led learning approach and would have liked more involvement, working with mentors to direct the content of sessions. School leads agreed that the main drawback for teachers was the time it took to supervise the sessions and the administrative tasks of organising the sessions, including ensuring mentees were in school and attended sessions. Mentors showed a commitment to their role and wanted more guidance (as part of the mentor training and overall programme) on the GCSE science syllabus, resources, and pedagogical approaches to optimise the sessions.

Additional findings

While the evaluation was unable to ascertain the impact of ASCENTS on GCSE outcomes, it does demonstrate that the intervention was well-received by teachers, mentors, and mentees and was implemented as intended[1].

The IPE found that mentees reported an improved understanding of science. This was supported by over two-thirds of school leads (69.4% of teachers from 36 schools) who also thought that pupils improved their understanding of science. Mentees also reported improvements in their interest and enjoyment of science, confidence, social skills, and maturity. They perceived that interactions with a university student had improved their social skills, and school leads felt this aided the development of their maturity. However, the perceived improvement in understanding of science did not translate into increased motivation to study science beyond GCSE. Mentees' aspirations for further science study or careers in science remained largely unchanged, and only 8.3% of teachers surveyed reported that ASCENTS had resulted in increased likelihood to take up further study of science after the intervention. This could be explained by the fact that mentees' expected grades were lower than the requirement for science A-levels. A majority of mentees (90.8%) agreed that ASCENTS would improve their GCSE science grades, while around two-thirds of teachers (61.1%) reported an improvement in pupils' attitudes to science.Overall, there was a high level of implementation fidelity to the ASCENTS model and the programme was delivered consistently across settings with little variation. Mentor and mentee attendance was generally good (91.4% for mentors and 78.2% for mentees) indicating a high compliance. Some barriers to implementation included mentee and mentor absences, which were often not communicated to the relevant party in advance of the session. School leads felt that the main drawback for teachers was the time it took to supervise the sessions and the administrative tasks of organising them. Mentors suggested the training could be further enhanced by providing guidance and resources on structuring mentoring sessions, pedagogical approaches, and the GCSE science syllabus. Some school leads commented that the mentee-led format might not be always beneficial and would have liked more involvement to ensure sessions were aligned to the curriculum. Aside from training, the process surrounding mentor or mentee absences could also be improved. Due to some communication issues, school leads suggested developing a more streamlined approach to co-ordinating absences.

The findings from the ASCENTS IPE align with the existing evidence from evaluations and meta-analyses of tutoring and mentoring programmes and offer new insights, particularly into the mentors' outcomes. These findings give support to the importance of the provision of training, ongoing support and information for mentors (DuBois et al., 2002; Leung 2015), mentee autonomy in setting goals (Rohrbeck et al., 2003; Ginsburg-Block et al., 2006), tailored teaching and evaluation (Rohrbeck et al., 2003; Ginsburg-Block et al., 2006), and structured activities for mentors and mentees (DuBois et al., 2002; DuBois and Rhodes, 2006; Ginsburg-Block et al., 2006; Leung, 2015). The IPE found that one-to-one support may have a positive effect on several pupil attitudinal outcomes, including interest in and enjoyment of science as well as on non-academic outcomes such as social skills, confidence, and maturity (Ginsburg-Block et al., 2006; Marshall et al., 2021). Yet, evidence from the ASCENTS evaluation also highlights the importance of a positive mentoring relationship and experience, and of expected science grades, in informing pupils' attitudes to pursuing further a scientific education and scientific career. In line with existing research on mentoring (Sharpe et al., 2018), findings from mentor's self-reported data indicate that participation is likely to increase mentors' interest in teaching and a career supporting disadvantaged young people. Although the findings suggest an increase in mentors' science knowledge due to taking part in ASCENTS, they provide more limited support for increased university attainment.

[1] The evaluation was unable to collect outcome data due to the changes in pupil assessment in 2020. The GCSE grades derived from the 2020 summer estimation process was problematic in the context of a trial because the statistical adjustments of centre outcomes would likely remove any real improvement in grades over the year, even if the centre estimated the improvement accurately based on the intervention's impact.

Introduction

Background

This section summarises the rationale and existing evidence for the intervention. It sets out the policy and practice context in England and outlines what is known about the impact and outcome pathways of mentoring and tutoring programmes in educational settings. It also highlights where additional research is needed, providing a rationale for the evaluation.

In the wider literature and in the below evidence synthesis, the terms 'mentoring' and 'tutoring' have distinct definitions. Tutoring usually involves subject-related support whereas mentoring has a role-model aspect. ASCENTS is an academically asymmetrical paired mentoring programme, which has similarities with one-to-one tuition (in terms of the academic support provided) but which also aims to provide a role model and mentor, making it more than just a tutoring intervention. Therefore, while findings from available studies of mentoring and tutoring may provide useful reflections, any comparison needs to be made with caution.

Policy and practice context

The attainment gap between advantaged and disadvantaged pupils in England has increased for the first time in 12 years (Hutchinson et al., 2020), a trend likely to continue because of the disproportionate negative effects that the COVID-19 pandemic and school closures are expected to have on disadvantaged pupils' learning. Disadvantaged pupils are less likely to access remote learning (Children's Commissioner, 2020; IFS, 2020) and are more likely to experience other negative impacts of the pandemic such as bereavement or lost household income (Health Foundation, 2020). An EEF rapid evidence assessment estimated that school closures could reverse a decade's progress in closing the attainment gap and suggests that the attainment gap could widen by up to 75% (EEF, 2020a). Teachers agree, believing that nearly half of pupils require intensive additional support, with higher need in more deprived areas (Sharp et al., 2020).

It has been shown that programmes involving targeted tuition have the potential to ameliorate these negative impacts. The EEF estimates that one-to-one tuition can boost learning by five additional months' progress (EEF, 2020b) and there is evidence that tutoring can be particularly beneficial for disadvantaged pupils and for those with low attainment (Nickow et al., 2020; Dietrichson et al., 2017; Burns et al., 2010; Torgerson et al., 2018). The cost of private tutoring is a barrier for disadvantaged pupils (Sutton Trust, 2019; Jerrim, 2017) with around 80% not accessing tutoring (NTP, 2020). The Department for Education has recently announced a £350 million National Tutoring Programme (NTP) in 2020/2021 with the aim to reduce the attainment gap and reform the tutor market through quality standards and increased access for disadvantaged pupils.

ASCENTS provides intensive (hour-long, weekly sessions) and extensive (23 sessions throughout the school year) one-to-one science mentoring for Year 11 pupils from low income backgrounds and is free for schools to access. Understanding whether and how it works provides important context for understanding the future sustainability of academic mentoring for disadvantaged pupils in England, including the NTP.

Expected impact

Expected impact of academic mentoring on attainment

There are few studies examining mentoring programmes that pair undergraduate science students with Year 11 pupils from disadvantaged backgrounds who are taking science at GCSE. ASCENTS was first introduced as a small-scale pupil-randomised efficacy trial (n = 86 Year 11 pupils; Sharpe et al, 2018). The authors found evidence of a positive impact. Mentees achieved better attainment in science in both mock and actual GCSE examinations with an effect size of 0.3 standard deviations.

ASCENTS is an academic mentoring programme which has similarities with one-to-one tuition (as it provides subject-specific support) but which also aims to provide a role model and mentor, making it more than just a tutoring intervention (as outlined above, see Background). However, findings from studies of both mentoring and tutoring may provide some useful reflections. There is a sizeable body of evidence of positive findings for both tutoring and mentoring interventions.

Evidence from meta-analyses show that one-to-one tuition is effective, resulting in moderate effects on pupil attainment across a range of outcomes and ages (Kunsch, Jitendra and Sood, 2007; Jun, Ramirez and Cumming, 2010). There is also evidence to suggest that one-to-one tuition is particularly effective for low-income, younger, urban, and minority pupils (Rohrbeck, Fantuzzo, Ginsburg-Block and Miller, 2003; Leung, 2014). It should be noted that evidence from recent single studies is more mixed. Evidence from two effectiveness trials showed that peer tutoring may not necessarily lead to improvements in attainment in all instances (Lloyd et al., 2015a, Lloyd et al., 2015b). As these studies were effectiveness trials as opposed to efficacy trials, it is possible that a lack of effect may be due to greater heterogeneity in, for example, how consistently the trial is delivered, how it is received by pupils, or due to other sources of influence at the pupil, tutor, and school level (DuBois, Holloway, Valentine and Cooper, 2002).

On average, mentoring (that is, providing role model and mentor support rather than subject-specific support as for tutoring) appears to have a small positive impact on academic outcomes. For instance, a meta-analysis of 55 evaluations found that there was a modest or small benefit of programme participation on academic performance. And slightly stronger effects were found for those from disadvantaged backgrounds (DuBois, Holloway, Valentine and Cooper, 2002). However, other meta-analyses find no effect on academic performance (Wood and Mayo-Wilson, 2012). Evidence from single studies also find little evidence for positive effects on academic performance, including those that look at science, maths, and English attainment (Bernstein, Rappaport, Olsho, Hunt and Levin, 2009; McQuillin, Smith and Strait, 2011; McQuillin, Strait, Smith and Ingram, 2015).

Moderating effect of prior attainment

Tutoring has been shown to have larger effects on those with low prior attainment in literacy and numeracy. A meta-review of 17 studies on numeracy tutoring interventions including guided practice and frequent feedback found that for those with low prior attainment the effect size was almost twice compared to those with average prior attainment (Burns, 2010). Similarly, a meta-review of 30 studies on literacy interventions found a moderate effect size of 0.56 for those performing below standards compared to 0.10 for those not at risk (Kidron, 2014).2 There is sparse evidence testing the moderating effect of prior attainment on outcomes of mentoring interventions, perhaps due to the very small, or non-existent, effect typically found for these types of interventions.

Impact of tutoring/mentoring on study choices

There is a scarcity of evidence analysing the effect of mentoring and tutoring on study choices. A small-scale pilot study, involving ten schools, found beneficial effects when school pupils who were about to choose their GCSE options were paired with university students reading Modern Foreign Languages (MFL). Just over half of pupils who took part in the mentoring scheme opted to enrol in MFL GCSE courses as a result of mentoring by undergraduates, and the greatest impact was noted in schools where uptake for GCSE MFL courses was lowest prior to its implementation (DfE, in press).

The ASCENTS evaluation aimed to contribute to the literature by examining whether any effects of the intervention persist in the longer-term by following pupils to Key Stage 5 (KS5) to determine whether they went on to enrol in A- or AS-level science subjects. However, this component of the evaluation was stopped due to the expected influence of COVID-19-related changes to the GCSE grading system in 2019/2020 on the likelihood of pupils enrolling in A- or AS-level science subjects.

Expected pathways to impact

The ASCENTS IPE assessed 'business as usual' (and the extent to which the intervention differed from this), implementation fidelity, and short, medium, and long-term outcomes. It sought to identify (i) the main factors driving or hindering implementation and informing outcomes and (ii) assess whether these factors were the same as in previously evaluated similar programmes. For example, the reoccurrence of a previously identified obstacle to achieving intended

[2] 'Not at risk' students were those who were not in any of the following groups: students from low-income households (students enrolled in schools with high rates of student poverty), students performing below standards (students performing below academic standards), students with chronic behaviour problems (students with a high number and severity of disciplinary infractions on school grounds), and students with individualised education programs.

outcomes could suggest that the lessons from previous programme evaluations were not fully understood, shared, or addressed by intervention developers in their implementation of ASCENTS.

Differentiation

NatCen reviewed the evaluations of two similar EEF-funded interventions, ThinkForward and Paired Reading, to identify the main risks to implementation fidelity (Demack, McCaig et al., 2016; Lloyd, Edovald et al., 2015a). In both cases, the evaluators reported that the availability of business as usual support for pupils in intervention settings had made it difficult to isolate the impact of the intervention.

Implementation fidelity

The following issues were encountered by developers in the two above-mentioned EEF programmes (Demack, McCaig *et al.,* 2016; Lloyd, Edovald *et al.,* 2015a):

- timetabling constraints, resulting in inconsistent dosage between schools (shorter sessions in some schools, longer sessions in others); and

  space constraints, resulting in the use of crowded or noisy rooms, which were not conducive to intervention delivery.

Mentees' responsiveness

Meta-analyses of mentoring and tutoring across a range of age groups and subjects have found the following components to be related to higher levels of pupil engagement. Although ASCENTS specifically provided academically asymmetrical paired mentoring, these considerations may also be relevant to this programme:

- initial and ongoing training for mentors and tutors (DuBois *et al.*, 2002; Leung 2015);
- higher pupil autonomy, for example through students being responsible for setting goals (Rohrbeck *et al.*, 2003; Ginsburg-Block *et al.*, 2006);
- individualised evaluation that pays attention to each learner rather than being standardised and is based on their improvement, progress, and mastery of material (Rohrbeck *et al.*, 2003; Ginsburg-Block *et al.,* 2006);
- structured activities for mentors/tutors and mentees/tutees such as question frameworks (DuBois *et al.*, 2002; DuBois and Rhodes 2006; Ginsburg-Block *et al.*, 2006; Leung 2015);
- expectations for frequency of contact (DuBois *et al.*, 2002); and
- same-gender dyads (Ginsburg-Block *et al.*, 2006).

Other factors related to intervention design which have been identified by available studies of mentoring and tutoring are the amount and type of information and training received by the school leads delivering the programme in schools, the amount and type of information and support received by mentors and tutors, and intervention duration and dosage (DuBois et al., 2002; DuBois and Rhodes 2006; Lloyd et al., 2015a; 2015b). No systematic investigation of the effects of the first two components has, as yet, been conducted and findings on the effects of the latter component are mixed. While evidence on tutoring suggests intensive blocks of tutoring over short time periods are more effective than longer programmes (Leung, 2015; EEF, 2018), the opposite has been found for mentoring (DuBois and Rhodes, 2006).

The literature also indicates one-to-one support may have a positive effect on several pupil attitudinal outcomes. In their evaluation of cross-age paired mentoring (delivered by undergraduate students to Year 11 pupils), Sharpe et al. (2018) found the intervention to have a significant positive impact on pupils' attitudes to science. The programme appeared to improve pupils' attitudes to 'learning science in school', 'science outside school', and 'pursuing further a scientific education and scientific career', and to help them retain their level of 'self-concept in science'. In their meta-analysis of the effects of peer-assisted learning (including peer tutoring and small-group cooperative learning interventions) on pupils' socioemotional outcomes, Ginsburg-Block et al. (2006) find peer-assisted learning to result in positive, small-to-moderate effects on social, self-concept, and behavioural outcomes, and both social and self-concept outcomes to be significantly positively correlated with academic outcomes. The relation between socioemotional outcomes and attainment, however, is complex and its direction unclear. The authors also find same-gender groupings to result in

significantly greater social and self-concept outcomes. Archer et al.'s (2010) analysis of children's science aspirations draws attention to the gendered nature of their constructions of science and identity and of their consequent perception of a science-related career as being for them or not for them. This suggests that having a mentor or tutor of the same gender may have a positive effect on young people's self-confidence and science aspirations by reshaping their gendered perceptions of achievement in science.

Importantly, research conducted in other countries points to possible unintended negative consequences of tutoring, such as higher levels of study-related stress and lower levels of overall wellbeing and self-esteem (Lee, 2013; Song et al., 2018). Song et al. (2018) suggest this is likely to be due to the negative effects of being identified as low-achieving and in need of support.

Mentors' responsiveness

Mentors' views and outcomes have been much less explored in the literature, so far. Recent effectiveness trials of peer tutoring programmes (that is, providing academic support only) conducted in the U.K. report a null to small negative effect on the achievement of pupils who acted as tutors (Lloyd et al., 2015a; 2015b). Yet, these interventions differed substantially from ASCENTS in that tutors and tutees were drawn from the same Key Stage and ASCENTS also includes the provision of role-model mentor support. The current process evaluation contributes to understanding mentor outcomes by looking at self-reported impact of mentoring on science-specific and broader academic achievement, and at eventual costs of time and resources. Sharpe et al. (2018) also found that undergraduate mentors taking part in their programme were more likely to go on to a teaching career than the national average and suggested changes in career aspirations resulting from taking part in mentoring. Through the analysis of pre- and post-intervention mentor survey data on their intention to take up a teaching career, and of national data on progression into teaching, NatCen will aim to investigate these processes in more depth. The findings from this analysis will be published as an addendum to this report in 2025.

Wider outcomes

The ASCENTS IPE also explored the possible effects of mentoring on two groups of people, namely peers (pupils in the same class as the mentee but not taking part in ASCENTS) and science teachers. While there is no evidence that mentoring has a spillover effect on peers, there is some literature showing that effective teachers not only impact their own pupils but also individuals who later share a class with those pupils. For example, a recent U.S. study showed that an increase in the average quality of pupils' previous elementary teachers affected their peers test scores by around 40% (Opper, 2019). Interestingly, the same study showed that the estimated spillovers occur particularly within gender groups and ethnic groups as opposed to within the entire classrooms or school community. This illustrates the crucial importance of social networks in disseminating the effect and suggests that much of the spillover effects are due to peer-to-peer interactions (Opper, 2019).

NatCen did not find studies analysing whether mentoring had effects on teachers' workload (for example, if it increased their administrative burden) and classroom management (for example, whether mentees' increased understanding of the subject—and the progress that resulted—made it easier for teachers to manage the classroom). This suggests a possible contribution of the ASCENTS evaluation to the literature.

Intervention

Overview and definition

ASCENTS 121 Support for Science trained science, technology, engineering, and mathematics (STEM) undergraduates to provide one-to-one science mentoring to disadvantaged Year 11 pupils in local schools in close proximity to the university partners. The design of the programme mirrored the approach that was used in the pilot evaluation, which generated statistically significant improvement in Pupil Premium students' GCSE science results (Sharpe et al., 2018). STEM undergraduates from five universities were trained to deliver mentoring sessions. The programme was expected to run in 35 schools from September 2019 to May 2020. Due to school over-recruitment, it was run in 43 schools. The COVID-19 pandemic and related school and university closures meant that the programme was delivered until March 2020.

Why: rationale

The effect of academic mentoring on learning outcomes is well-documented (see Background section for a short review of the literature). Overall, the evidence suggests that one-to-one academic mentoring is an effective way to improve attainment and may also increase subject enjoyment and interest.

However, the high costs associated with one-to-one academic mentoring may result in reduced access for disadvantaged pupils. Furthermore, schools may find it difficult to fund mentoring programmes as it is an expensive type of support. Therefore, interventions like ASCENTS, which include one-to-one academic mentoring targeted at disadvantaged pupils, could expand access for disadvantaged pupils and reduce the attainment gap.

Who: recipients

ASCENTS was delivered by undergraduate science students (mentors) to Year 11 pupils (mentees).

Mentors had to meet the following eligibility criteria to take part:

- be in their second or third year of study during the academic year of mentoring sessions (2019/2020);
- be studying for a degree in a science related subject that confers a BSc degree or integrated master's degree;
- have a minimum of a C grade in GCSE English, maths, and science; and
- have a minimum of one A-level in either biology, chemistry, physics, or psychology at grade C or higher.

Schools had to meet the following criteria:

- be a state, mixed-sex school; and
- be located within the vicinity of the university partners in Lincoln, London, Leeds, Liverpool, and York.

Mentees had to meet the following criteria:

- be in Year 11 during the academic year of mentoring sessions (2019/2020);
- be eligible for Pupil Premium;
- be predicted a grade 3 to 5 in GCSE science; and
- be studying combined double award science (foundation or higher).

What: materials

Pupils eligible to take part in ASCENTS were identified by school leads. Pupils were given a letter with information about the programme. Pupils were also given a letter to give to their parents, which similarly gave information about the programme and that sought written parental permission for their child to take part (Appendix C).

What: procedures

Recruitment of mentors, schools, and mentees

Figure 1: Recruitment pathway of universities, schools and pupils

Each university participating in the programme was responsible for recruiting mentors from their cohort of undergraduate students. Universities invited students to take part in the programme via an invitation letter sent to all STEM undergraduates in their first or second year of study. Information about the programme was also communicated through advertisements on the university website as well as through announcements during lectures and seminars. Undergraduates were able to apply to take part in the programme by emailing the ASCENTS university lead or applying through the student job shop. Places on the programme were allocated to eligible mentors on a first-come, first-served basis. Once recruited into the programme, the university verified that the mentor eligibility criteria were met and undertook DBS clearance checks.

The University of Lincoln and partner universities also identified and recruited eligible schools through university outreach departments and school-centred initial teacher training departments (SCITT). Techniques to recruit included utilising existing school contacts, conducting local marketing campaigns (through emails and social media), and face-to-face visits with headteachers. NatCen provided guidance on eligibility criteria and requirements for research participation. Schools then applied to take part in the programme by contacting the ASCENTS university lead.

Schools selected a school lead, usually a science teacher. Participating schools were required to identify eligible pupils and send a letter to them and their parents/carers about the programme and invite them to take part. It was made clear to pupils and parents that the programme was being evaluated and that pupils may be allocated to treatment or control group. Universities were responsible for pairing undergraduate students with Year 11 pupils. Undergraduate timetabling determined which mentors were made available to which schools and then mentors were randomly allocated to pupils. Once the pairings were completed, universities informed mentors of their allocated schools and the details of their first mentoring session.

Mentor training and support

Mentors were required to attend two days of training held at their university in advance of the mentoring sessions. The first day of training was delivered by the local partner university programme manager. The purpose of this day was to cover procedural aspects of the intervention, including an introduction to the ASCENTS project, alongside DBS and paperwork checks. The second day was delivered by the University of Lincoln and provided mentoring and safeguarding training. The mentors were given the opportunity to ask questions at the end of each training day.

Mentors were required to attend a brief (one to two hours) additional school-specific procedural training session in their allocated school on the day of their first mentoring session. This provided an opportunity for the lead teacher to meet with mentors, orientate mentors to the school and space for mentoring, as well as reiterating school safety procedures, in case of a fire, for example. This session was delivered by the ASCENTS contact at each school.

It was intended that all mentors would have two meetings per term with their ASCENTS university lead and receive ongoing support when required. However, this aspect was reviewed during delivery and support took place on an ad-

hoc basis when needed. If a mentor required subject-specific support, they were advised to ask the teacher in the school who supervised the sessions.

Travel fund

ASCENTS included a discretionary travel fund, managed by the developers, to cover mentors' travel expenses.

Who: implementers

ASCENTS was developed by the University of Lincoln. The programme was delivered by the University of Lincoln in collaboration with the University of Leeds, University of Liverpool, UCL Institute of Education, and University of York. Each university coordinated intervention activities with mentors and local schools.

The intervention was evaluated by NatCen Social Research.

The programme and evaluation was jointly funded by the EEF and the Wellcome Trust.

How: mode of delivery

Delivery of 23 mentoring sessions

Mentees were intended to receive 23 weekly one-hour face-to-face ASCENTS mentoring sessions throughout Year 11. Due to the COVID-19 pandemic and related school and university closures, the intervention ended earlier (mentoring stopped across schools from the week beginning 16 or 23 March, after 19 or 20 weeks of delivery instead of 23 weeks as intended). The topic of each session was to be decided by the Year 11 pupil mentee. While teacher input was intended to be minimal, teachers had the opportunity to suggest work to be covered through informal discussions with mentors. The topics chosen were intended to be part of the GCSE science curriculum. All sessions were to be desk-based with no practical component. Deviations from intended delivery will be discussed in the IPE findings section on fidelity of implementation. Mentors were paid for two hours of their time, to cover expected preparation time, session delivery, and follow-up work. Hourly pay rates were set by the university and varied across each university.

Revision day for mentees

After the 23 mentoring sessions had been delivered, it was intended that mentees would be invited to a six-hour revision session held at their partner university ahead of their GCSE examinations. The session would be delivered by the mentors and include one hour of mentoring on each subject for biology, chemistry, and physics. The revision session could be delivered in school if schools decided that they did not want to visit the university or could not cover the transportation costs. This component of the intervention was not delivered due to COVID-19.

When and how much: dosage

Developers recommended schools to plan (i) one hour of mentoring per week and (ii) that this should take place outside of school hours, such as before or after school, but not during the Year 11 pupils' lunchtime.

Mentees were to receive 23 weekly one-hour face-to-face ASCENTS mentoring sessions throughout Year 11. This dosage is both high and intensive compared with examples in the literature. Although ASCENTS provided academic mentoring, the programme was compared with EEF-funded one-to-one tuition rather than mentoring interventions as the former were more similar in terms of content and outcomes (which, in contrast to other mentoring programmes, were subject-specific). Of the ten other one-to-one tuition programmes funded by the EEF:3

- only three provided more contact time than ASCENTS;
- only one had more frequent meetings than ASCENTS;
- none seemed to have longer sessions than ASCENTS (although the duration of sessions was not always reported); and
- several included elements of small-group tuition.

[3] **https://educationendowmentfoundation.org.uk/projects-and-evaluation/projects/**

Where

The sessions were held at the mentees' school under the supervision of a qualified teacher, usually the school lead. All mentor-mentee pairs held the sessions in the same room. The number of pairs varied across schools, from two to fourteen, with around eight pairs on average. Schools were responsible for organising and supervising the room. Developers specified that the mentoring sessions should take place in a classroom or science lab spacious enough for all mentors and mentees to fit in and be adequately spaced apart.

Tailoring

Schools had some flexibility with regard to the timing of the mentoring sessions, which could be delivered before or after school or during school 'free periods' but not during lunchtime.

Intervention logic model

The ASCENTS logic model (see Figure 2) was designed in conjunction with the intervention developers (University of Lincoln) during the project set-up phase. The logic model outlines the sequence of activities implemented by developers, university partners, and schools. It sets out the intended impacts of the programme for mentees and mentors, and the short- and medium-term outcomes that are expected to lead to these impacts. No modifications were made to the logic model during the trial. Figure 3 shows the revised ASCENTS logic model based on the evidence in support of the original logic model outcomes found by the evaluation (see Table 7).

Figure 2: ASCENTS logic model

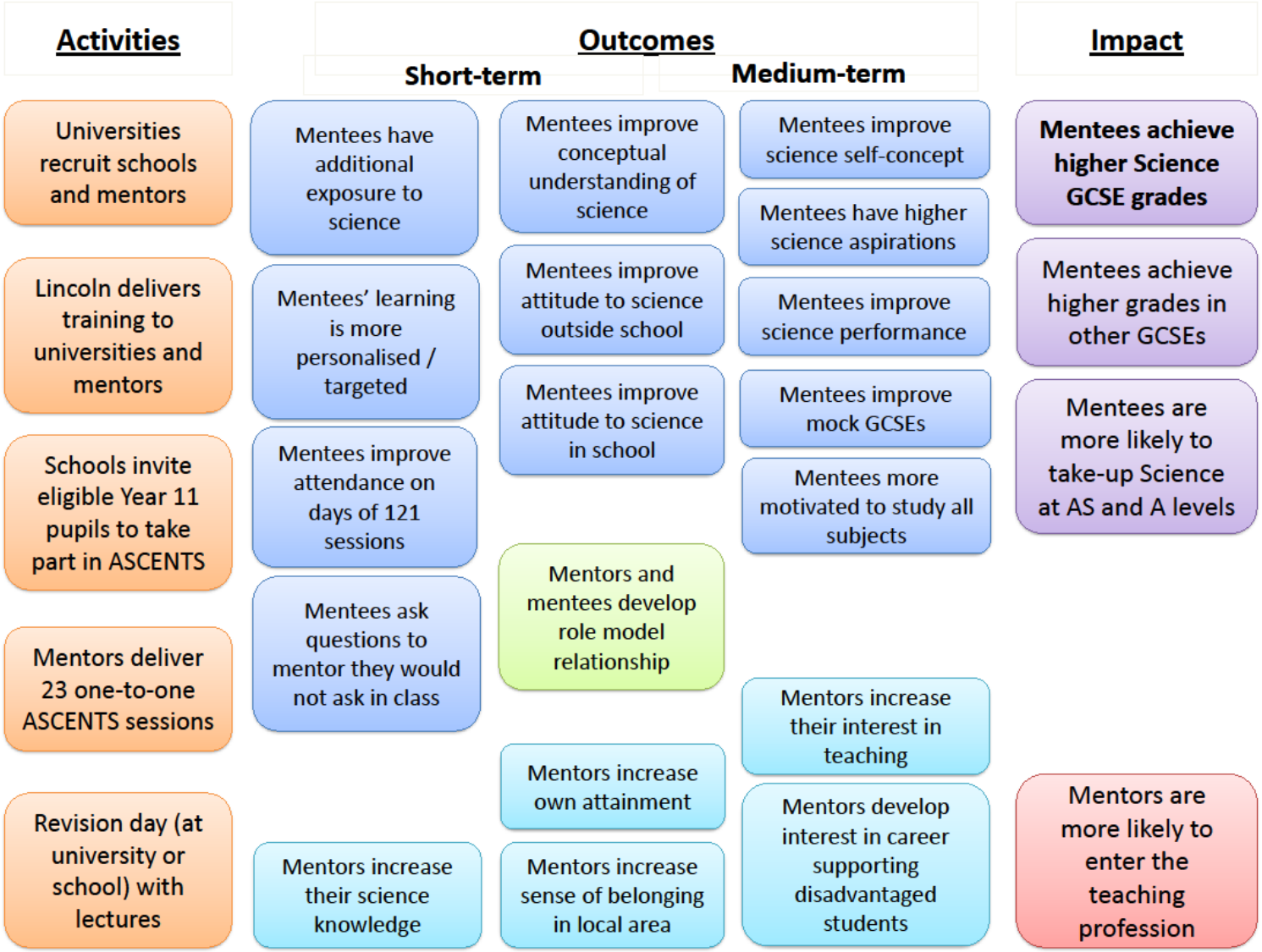
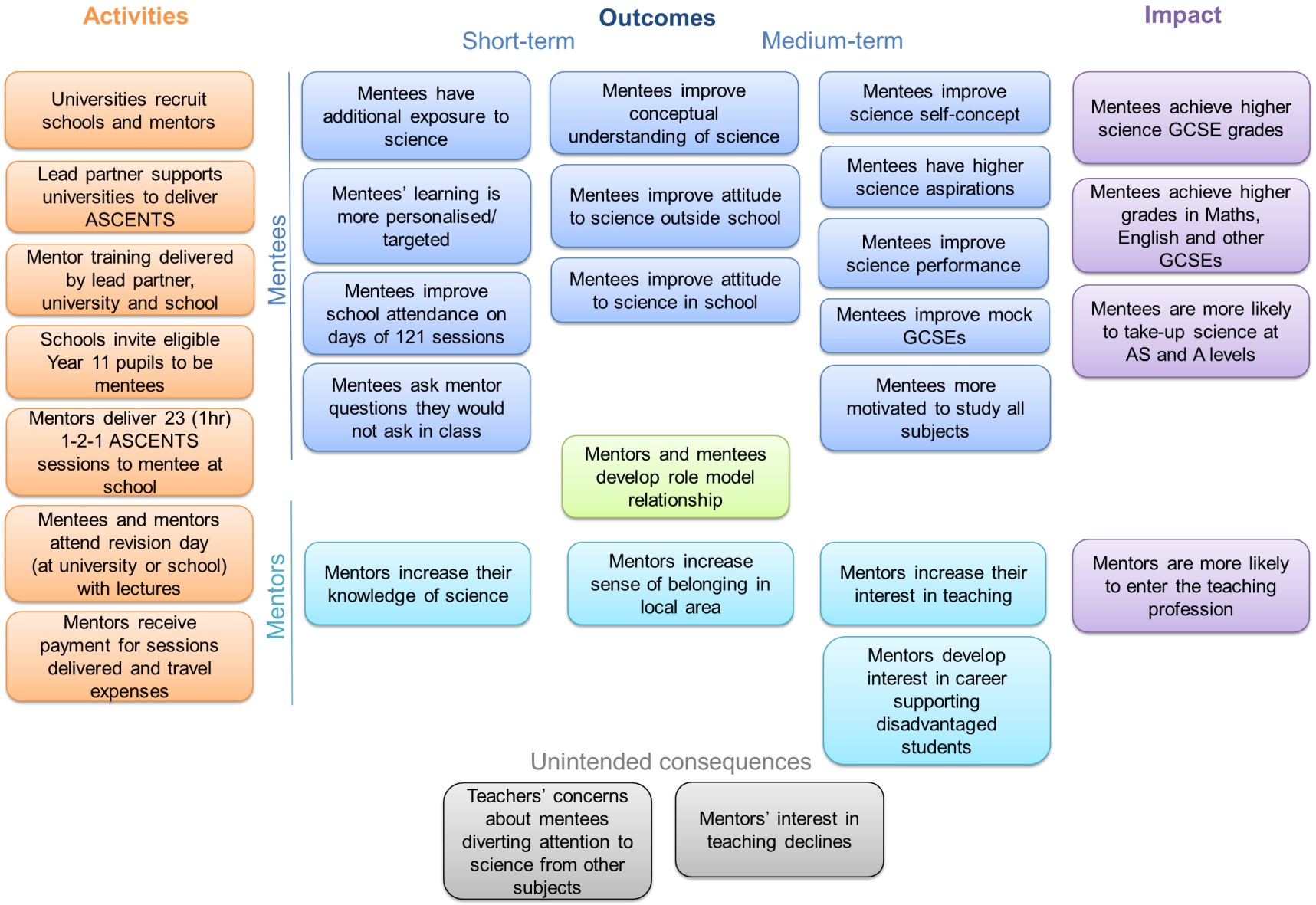


Figure 3: ASCENTS revised logic model based on the evaluation findings



Issues that occurred during the project

Recruitment

Schools

Some of the schools recruited to the programme were relatively far away from the university and/or in a rural location. This meant that they were either unable to find a suitable time for mentors and mentees to attend ASCENTS sessions outside of school hours or that no mentors could be allocated to the school due travel difficulties. Other schools did not manage to recruit enough pupils for the intervention to be viable or to sustain attendance of the mentees who had signed up. Of the 51 schools initially recruited, five withdrew before pupil randomisation and three withdrew after pupils being randomised to the treatment group.

Due to over-recruitment of schools and pupils to take part in the programme and trial (845 pupils were recruited instead of the 770 intended), an 'excluded from the evaluation' pupil list was created. This was to keep the number of pupils in the treatment and control groups as originally intended, to match the number of mentors recruited, and to have a similar number of pupils in treatment and control. In schools that had recruited higher numbers of pupils, pupils were first randomised into two groups, treatment and non-treatment; second, pupils in the non-treatment group were randomly allocated to the control group (similar number of pupils as the treatment group) and excluded from the evaluation group (remaining pupils).

Contamination

Contamination across treatment conditions can happen because of pupils in the control group taking part in the intervention or because of the spillover of programme effects from the treatment to the control group. The findings from the ASCENTS IPE suggest there may have been some, albeit limited, contamination. Almost all school leads (35 out of 36) confirmed that pupils in the control group did not take part in the programme. The majority of leads (30 out of 36 schools) did not know if there had been any spillover effects in terms of mentees sharing learning from their mentoring sessions. There was one case where a school lead had seen this happen within a friendship group, but not within the wider class. On the other hand, half (50.5%) of the mentees who took part in the post-intervention survey said they shared learning from ASCENTS with other pupils not receiving the programme (30.7% did not share any learning; 18.8% did not know).

School closures due to COVID-19

Delivery issues

Due to COVID-19 and related school and university closures, the intervention was stopped after 19 or 20 weeks instead of the 23 weeks intended, and the revision day was cancelled.

Evaluation issues

For the same reason, the intended IPE activities, which required in-person data collection, were either cancelled (school visits and focus groups with mentees) or modified (the post-intervention mentee survey was delivered online instead of on paper). Due to the COVID-19 pandemic, GCSE examinations due to be held in 2020 were cancelled and pupils received their GCSE grades based on teacher assessments. As this would have reduced the reliability and generalisability of findings, the impact evaluation was cancelled. A-level subject choices were not collected from schools in an effort to minimise burden of teachers during the COVID-19 pandemic.

Evaluation objectives

This trial was intended to include an impact evaluation and an implementation and process evaluation (IPE). Details of the evaluation design can be found in the protocol4 and the statistical analysis plan (SAP).5 Due to COVID-19 and

[4] https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Protocols/ASCENTS_trial_protocol_website.pdf
[5] https://educationendowmentfoundation.org.uk/public/files/Projects/ASCENTS_SAP_V2.pdf

related school and university closures, the intervention and trial were cancelled early. Below we set out all the intended evaluation objectives and the IPE objectives that we will outline in this report.

Impact evaluation

Aims—intended but unable to report on

The impact evaluation aimed to answer the following research questions (RQs):

- What is the impact of ASCENTS on the science attainment of disadvantaged Year 11 pupils in England?
- What is the impact of ASCENTS on the maths attainment of disadvantaged Year 11 pupils in England?
- What is the impact of ASCENTS on the English attainment of disadvantaged Year 11 pupils in England?
- What is the impact of ASCENTS on enrolment in science A- and AS-levels?
- How does the impact of ASCENTS differ by prior levels of attainment?

Implementation and process evaluation

Aims—reported on

The IPE aimed to explore:

- whether/how ascents differs from the usual practice;
- the level of implementation fidelity;
- the level of responsiveness from mentors;
- the level of responsiveness from mentees; and
- perceived outcomes/impact for mentors and mentees, and wider outcomes for non-participating pupils, teachers, and universities.

Aims—intended but not reported on

- The cost and affordability of the programme. No data on the cost of the programme was collected from schools to avoid over-burden during the COVID-19 pandemic.

IPE dimensions

The IPE covered the following dimensions:

- differentiation—the extent to which ASCENTS differs from the usual practice in terms of activities and dosage;
- implementation fidelity—the extent to which the programme was delivered as intended by universities and schools; more specifically, the IPE explored:
    - behaviours—including recruitment of mentors, mentees and schools, training sessions organised, and support provided to mentors; and
    - perceived drivers and obstacles to implementation;
- mentors' responsiveness—the extent to which mentors were actively involved in delivering the intervention (as defined by Reeve, Jang, Carrell, *et al.*, 2004); the IPE explored:
    - behaviours—including how much time spent preparing, delivering, and following up on ASCENTS sessions, and absenteeism;
    - cognitive mechanisms—perceived costs and benefits of mentoring;
    - emotions—enjoyment, perceived quality of the interaction with mentees; and

    - factors moderating mentor engagement;
- mentees' responsiveness—the extent to which mentees were actively involved in the intervention; the IPE explored:
    - behaviours—including how much time spent preparing and following up on ASCENTS sessions and absenteeism;
    - cognitive mechanisms—perceived costs and benefits of mentoring;
    - emotions—self-confidence, enjoyment, perceived quality of the interaction with mentors; and
    - factors moderating mentee engagement; and
- wider outcomes—the extent and the ways in which the intervention affected pupils who did not take part, teachers, and schools; the IPE explored the perceived benefits of the intervention on:
    - classroom learning dynamics—these could be positive (for example, a faster pace of learning, mentees sharing tips and documents with non-participating students) or negative (for example, discouragement or perceived unfairness among non-participating pupils, some of whom may have applied to participate in the programme); and
    - teachers' workload and class management.

The research questions addressed by the IPE and reported on here are included in the table below. Intended research questions and data collection instruments are outlined in the study protocol.[6]

Table 1: IPE research questions

IPE dimension	Research questions	Data collection instruments
Differentiation	What is business as usual? To what extent does ASCENTS differ from business as usual (BAU)? What were the motivations for universities and schools to take part?	Pre-intervention school lead survey Post-intervention school lead interviews
Implementation fidelity	Was ASCENTS implemented as planned by both universities and schools? What were the drivers and obstacles to implementation?	Pre-intervention university lead interviews Pre-intervention school lead survey Post-intervention school lead survey Post-intervention school lead interviews Mentors' training observations
Mentors' responsiveness	How engaged were mentors in preparations, delivery, and follow up? What were the perceived costs and benefits of being an ASCENTS mentor? What did mentors learn? What evidence is there of any short, medium, and long-term outcomes and unintended consequences of ASCENTS for mentors? How did mentors feel about mentoring? What were the drivers/obstacles to mentors' engagement?	Pre-intervention mentor survey Post-intervention mentor survey Mentors' training observations Post-intervention school lead interviews
Mentees' responsiveness	How engaged were mentees in preparing for, attending, and following up on mentoring sessions? What were the perceived costs and benefits of participating in ASCENTS? What evidence is there of any short, medium, and long-term outcomes and unintended consequences of ASCENTS for mentees?	Pre-intervention mentee survey Post-intervention mentee survey Post-intervention mentor survey Post-intervention school lead survey Post-intervention school lead interviews

[6] https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Protocols/ASCENTS_trial_protocol_website.pdf

	How did mentees feel about mentoring sessions? What were the drivers/obstacles to mentees' engagement?	
Wider outcomes	What is the perceived effect of ASCENTS on classroom learning dynamics (as defined above)? What is the perceived effect of ASCENTS on schools and teachers? What are the drivers/obstacles to positive outcomes?	Pre-intervention school lead survey Post-intervention school lead survey Post-intervention school lead interviews

Ethics and trial registration

Ethics

The NatCen's Research Ethics Committee reviewed and approved the research proposal for this project on 11 January 2019. The committee consists primarily of senior NatCen staff and provides guidance and recommendations to ensure projects are conducted to the highest ethical standards.

Procedures for obtaining agreement to participate in the trial

Mentor recruitment

University partners identified and recruited mentors, with NatCen communicating the requirements for research participation. Mentors were given a study information letter, a link to the NatCen project webpage, and were asked to sign a Memorandum of Understanding to express consent to take part in the evaluation (Appendix A). Full names and institutional email addresses of participating mentors were transferred to NatCen securely.

School recruitment

University partners identified and recruited eligible schools, with NatCen advising on eligibility criteria and communicating the requirements for research participation. Schools were provided with a study information letter, a link to the NatCen project webpage, and were asked to sign a Memorandum of Understanding to express consent to take part in the evaluation (Appendix B). Contact details of participating schools' leads were transferred to NatCen securely.

Pupil recruitment

Schools were responsible for recruiting eligible pupils. Schools were provided with two study information letters: one for eligible pupils and one for their parents (Appendix C). These letters detailed all aspects of the intervention and evaluation, the voluntary nature of participation, and the management of confidentiality and anonymity. They were also provided with a link to the NatCen project webpage for further information. Details (name, unique pupil identifier, date of birth) of pupils whose parents gave permission to take part in the intervention were transferred to NatCen securely.

Pupils (or their parents if they were under the age of 16) had the opportunity to object to their data being processed as part of the evaluation at any point after data collection and until a draft report was submitted to the EEF. They also had the right to raise any concerns with the Information Commissioner's Office.

Registration

The trial's registration number is: ISRCTN28630907.

More details are available on the ISRCTN website: **https://doi.org/10.1186/ISRCTN28630907**

Data protection

The EEF and Wellcome Trust funded NatCen to carry out the independent evaluation of ASCENTS.

NatCen is the data controller and data processor for this study. In order for the use of personal data to be lawful, one (or more) conditions must be met as set out in Article 6 (1) of the General Data Protection Regulation (GDPR).

Personal data

The legal basis for processing personal data is covered by GDPR Article 6 (1) (f):

Legitimate interests: the processing is necessary for your (or a third party's) legitimate interests unless there is a good reason to protect the individual's personal data which overrides those legitimate interests.

NatCen's assessment is that the evaluation fulfils one of its core business purposes (undertaking research, evaluation, and information activities) and is therefore in its legitimate interest and that processing personal information is necessary for addressing the research questions in this study. NatCen has considered and balanced any potential impact on the data subjects' rights and finds that its activities will not do the data subject any unwarranted harm.

Data processing

NatCen provided a Memorandum of Understanding to participating schools and mentors explaining the nature of the data being requested, how it would be collected, and how it would be passed to and shared between partner universities to NatCen (Appendix A and Appendix B). Procedures for ensuring data quality, anonymity, and confidentiality can be found in the privacy notice.[7]

Project team

Delivery team

Ian Abrahams, University of Lincoln
Ruth Amos, University College London, Institute of Education
Lynda Dunlop, University of York
Leanne Mason, University of York
Michael Inglis, University of Leeds
Michael Reiss, University College London, Institute of Education
Rachael Sharpe, University of Lincoln
Helen Vaughan, University of Liverpool.

Evaluation team[8]

Table 2: Evaluation team

Conceptualisation	Lydia Marshall (LM), Daniel Phillips (DP)
Data curation	Berenice Scandone (BS), Helen Burridge (HB), Tom Bristow (TB)
Analysis	Berenice Scandone, Helen Burridge, Helena Takala, Tom Bristow, Valdeep Gill (VG)
Funding acquisition	Lydia Marshall, Daniel Phillips
Investigation	Berenice Scandone, Helen Burridge, Tom Bristow
Methodology	Lydia Marshall, Daniel Phillips, Arnaud Vaganay (AV)
Project administration	Arnaud Vaganay, Berenice Scandone
Resources	NatCen Social Research
Supervision	Arnaud Vaganay, Valdeep Gill
Validation	Ellen Broome (EB)
Visualisation	Berenice Scandone, Helen Burridge, Helena Takala (HT)
Writing, original draft	Berenice Scandone, Helen Burridge, Helena Takala, Valdeep Gill, Vainius Bartasevicius (VB)
Writing, review and editing	Berenice Scandone, Valdeep Gill

All evaluators are affiliated with NatCen Social Research.

[7] http://www.natcen.ac.uk/taking-part/studies-in-field/evaluation-of-ascents-121-support-for-science/privacy-notice/
[8] Based on the CRediT taxonomy of research roles**:** https://casrai.org/credit/

Methods

Trial design

The evaluation was intended to be conducted as a multi-site efficacy trial. It was designed to measure the impact of ASCENTS for disadvantaged Year 11 pupils in England meeting the eligibility criteria defined in the Intervention section. The primary outcome of interest was intended to be science GCSE attainment using GCSE grades from the National Pupil Database (NPD). Secondary outcomes of interest were intended to be NPD-derived measures of maths and English GCSE attainment, as well as progression to study science subjects at A- or AS-level. The trial randomised at the pupil level with pupils either randomised to a treatment group receiving ASCENTS or a control group receiving 'business as usual' teaching and support. A detailed description of the trial design and its rationale are included in the study protocol and SAP.9

The within-school randomisation used in this evaluation follows that undertaken by a previous study of this intervention (Sharpe et al., 2018). An individual-level treatment allocation was also chosen because it provided the most cost-effective way of ensuring sufficient numbers of pupils and mentors were recruited to meet the requirements of the programme, compared to random allocation at class or school level. As individual-level treatment allocation may increase the potential for spillover effects whereby the intervention impacts non-eligible pupils in the same class, year, or school, we planned to explore the potential for such effects via the IPE.

Participant selection

The intention was to recruit 770 pupils from 35 schools to participate in the trial (22 pupils per school); each of the five partner universities was asked to recruit seven schools. Eligible pupils were those qualifying for Pupil Premium, studying for a combined double award science GCSE, and predicted to achieve a grade 3 to 5 at GCSE examinations. Due to the small number of pupils recruited in some of the schools, 51 schools were ultimately recruited to take part in ASCENTS. Of these, 43 schools took part, five withdrew before pupil randomisation, and three withdrew after pupil randomisation.

In total, 845 pupils were recruited to take part across 46 schools. Pupils were randomised within schools, with a similar number allocated to the treatment and control group in each school: 385 pupils were allocated to the treatment group and 383 were assigned a control status; 77 were excluded from the evaluation (to keep the number of pupils in the treatment group as intended and to have a similar number of pupils in the treatment and control groups).

Three hundred and sixty-nine pupils across 43 schools took part in the intervention. Schools identified those pupils eligible and interested in receiving mentoring. Pupils had to be in Year 11, eligible for Pupil Premium, predicted a grade 3 to 5 in GCSE science, and studying combined double award science (foundation or higher). Schools were required to provide background information for all Year 11 pupils including the Unique Pupil Number (UPN), date of birth, first name, and surname. Pupil information was uploaded by schools using a secure NatCen website upload platform. The allocation of pupils to treatment and control groups was communicated to schools by NatCen. Pupils assigned to the control group received a business-as-usual approach to learning science. A waitlist was not possible as pupils were in the final year of school (Year 11) and the intervention lasts most of the academic year.

Seventy-seven mentors were recruited from each of five universities giving a total of 385 mentors. Undergraduate timetabling determined which mentors were made available to schools, and then mentors were randomly allocated to pupils.

[9]https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Protocols/ASCENTS_trial_protocol_website.pdf; https://educationendowmentfoundation.org.uk/public/files/Projects/ASCENTS_SAP_V2.pdf

Implementation and process evaluation

Research methods

The implementation and process evaluation (IPE) synthesised the data collected from nine research instruments. Table 4 also includes the additional data collection tools the team intended to use but were unable to due to COVID-19 and school closures. Details of these research instruments can be found in the evaluation protocol.[10]

Research with mentors

Pre-intervention mentor survey (Appendix D)

The aim of this survey was to collect data on mentors' profile and background mentoring experience, career aspirations, motivation to take part in ASCENTS, experience of the ASCENTS programme so far (application, training), and expectations about participating in the ASCENTS mentoring programme. The survey was designed in-house by NatCen and was distributed in May 2019 during the mentor training session. The delivery mode of this survey was online. No incentives were used. The expected completion time was 15 minutes.

Post-intervention mentor survey (Appendix D)

The aim of this survey was to collect data on mentors' experience of ASCENTS, including delivery of the mentoring sessions, interactions with pupils, teachers, and programme managers, as well as study plans and career aspirations. The survey was designed in-house and was conducted in May and June 2020. The delivery mode of this survey was online. No incentives were used. The expected completion time was 15 minutes.

Research with mentees

Pre-intervention mentee survey (Appendix E)

This survey aimed to provide a baseline of pupils' intermediate outcomes, such as motivation, attitudes to science, confidence in relation to their science GCSEs and career aspirations. It also gathered contextual information on science-related extracurricular activities (including private tutoring) that students had been involved in or intended to take part in during the intervention period. The survey was designed in-house and took place in October 2019 as part of the first mentoring session. The delivery mode of this survey was paper. No incentives were used. The expected completion time was 15 minutes.

Post-intervention mentee survey (Appendix E)

The aim of this survey was twofold. The first part of the survey aimed to capture any change in pupils' motivation, confidence, and attitude to science by repeating relevant questions from the pre-intervention survey. The second part collected data on pupils' experience of the programme and relationship with mentors. The survey was designed in-house and the timing was May and June 2020. The delivery mode of this survey was online to allow pupils to take part during COVID-19-related school closures. The survey was sent to the lead teacher who distributed it to mentees. A £10 prize draw per school was used to incentivise responses. The expected completion time was 15 minutes.

Research with teachers (school project leads)

Pre-intervention school lead survey (Appendix F)

This survey aimed to gather contextual information on the school, such as the types of additional science activities or extra sources of help that were available to pupils, to understand usual practice. We also asked questions about school leads' experience of ASCENTS to date, including arrangements for recruiting pupils and any challenges experienced. The survey was designed in-house and the timing was October 2019. The mode of this survey was online. The expected completion time was ten minutes.

Post-intervention school lead survey (Appendix F)

This survey aimed to collect up-to-date contextual information on how the mentoring sessions were delivered in school, intervention dosage, and any perceived benefits or challenges for the school, whole class, and individual pupils. There

[10] https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Protocols/ASCENTS_trial_protocol_website.pdf

were also questions about how randomisation was perceived by pupils in the treatment and control groups. The survey was designed in-house and took place in June and July 2020. The delivery mode of this survey was online. The expected completion time was 15 minutes.

Post-intervention school lead interviews (Appendix G)

School leads in five sampled schools were interviewed. Schools were sampled to achieve one school per university and a mix in terms of number of mentees, proportion of pupils eligible for free school meals, and Ofsted rating. The aim of these interviews was to explore:

- business as usual science support;
- motivation to take part in ASCENTS;
- experiences of delivery including challenges and facilitators;
- school leads' perceptions of the outcomes for pupils and the wider outcomes of the project, including:
    - classroom learning dynamics—pace of teaching/learning, student engagement with the school teachers and the teaching materials, students' attitudes and interest in science, and progress made by non-participating pupils; and
    - teachers' workload and class management.

Interviews were semi-structured and guided by a set of thematic areas and related prompts. The timing of these interviews was June and July 2020. Interviews were conducted by telephone. The duration of these interviews was around 30 minutes.

Research with programme managers

Pre-intervention programme managers interviews (Appendix H)

All five university programme managers were interviewed. The aim of these interviews was to gather information on:

- university partners' motivation to take part in ASCENTS;
- their approach to mentor recruitment and school recruitment;
- the allocation of mentors to mentees;
- the support that will be provided over the course of the school year; and
- the support received from the programme lead (Lincoln) and other universities (if any) as well as the usefulness of the information received.

Interviews were semi-structured following a set of key themes and related prompts. The timing of these interviews was June 2019 and they were carried out by telephone. The duration of these interviews was around 45 minutes each.

Observations

Mentor training observations (Appendix I)

The second day of training was observed in two universities. The aim of these observations was to understand:

- how the delivery team framed the benefits of ASCENTS for mentors;
- what support the team offered mentors to overcome potential obstacles;
- how detailed was the advice the team gave to mentors;
- whether key risks were identified and discussed; and
- the level of engagement of mentors.

These observations were conducted by one researcher per setting and were guided by a thematic framework. The timing of these observations was May 2019. The mode was in person. The duration of each observation was one day.

Analysis

Interviews were digitally audio-recorded and professionally transcribed. Framework in NVivo,11 a systematic approach to qualitative data management developed by NatCen, was used to chart (collate and summarise) transcribed data by theme and case. In this project, we used a mixed deductive/inductive approach to charting, with data being synthesised according to pre-established themes set out in the topic guides as well as emerging themes. Thematic analysis aimed to describe patterns in the data in relation to these themes.

Quantitative data was analysed by means of frequencies and cross-tabulations using SPSS (to test the statistical significance of hypothesised relations between respondent characteristics and survey responses). For mentor and mentee pre- and post-intervention surveys, we analysed all the data available for each survey wave. For questions that were repeated in the pre- and post-intervention surveys with the aim to capture change over time, we analysed data from respondents who completed both waves. SPSS v21 was used to analyse survey data and syntax files were used to ensure a record was kept of how analysis was conducted.

Anonymised quotes from university leads, school leads, mentees, and mentors from interviews and open-text survey questions were selected and included to illustrate IPE findings.

Table 3: IPE methods overview

Research methods	Data collection methods	Participants/data sources	Data analysis methods	Implementation/logic model relevance
Qualitative	Observations	Mentor training sessions (2 out of 5)	Thematic analysis	Implementation fidelity
Qualitative	Interviews (pre-intervention)	University leads (5/5)	Thematic analysis	Implementation fidelity, facilitators and challenges
Quantitative	Survey (pre-intervention)	Mentors (347/385)	Descriptive statistics	Mentor responsiveness and outcomes
Quantitative	Survey (pre-intervention)	Mentees (280/369)	Descriptive statistics	Mentee responsiveness and outcomes
Quantitative	Survey (pre-intervention)	School leads (39/43)	Descriptive statistics	BAU and programme differentiation; fidelity of implementation, facilitators and challenges
Quantitative	Survey (post-intervention)	Mentors (208/385)	Descriptive statistics	Mentor responsiveness and outcomes
Quantitative	Survey (post-intervention)	Mentees (101/369)[12]	Descriptive statistics	Mentee responsiveness and outcomes
Quantitative	Survey (post-intervention)	School leads (36/43)	Descriptive statistics	Fidelity of implementation, facilitators and challenges; mentee outcomes; wider outcomes
Qualitative	Interviews (post-intervention)	School leads (5/43)	Thematic analysis	BAU and programme differentiation; fidelity of implementation, facilitators and challenges; mentee outcomes; wider outcomes
Qualitative	Observations (activity not delivered due to COVID-19 school closures)	Mentoring sessions (5)	Thematic analysis	Fidelity of implementation; mentee and mentor responsiveness
Qualitative	Focus groups (activity not delivered)	Mentees	Thematic analysis	Mentee responsiveness and outcomes

[11] http://research.apc.org/images/a/ad/Framework_analysis.pdf
[12] The response rate for the post-intervention mentee survey was lower than expected. Respondent demographics were very similar across waves. However, at post-intervention there was a slightly lower proportion of mentees from white British backgrounds and higher proportion of those from Black African/Caribbean/British backgrounds. It is possible that pupils who were more engaged in the programme took the time to complete the survey.

Timeline

Table 4: IPE timeline

Dates	Activity	Staff responsible/leading
May 2019	Mentor training observations Pre-intervention mentor survey	AV; BS
June 2019	Pre-intervention programme manager interviews	AV; BS
September 2019	Randomisation of pupils	DP
October 2019	Pre-intervention mentee survey Pre-intervention school lead survey Intervention delivery starts	AV; BS
March 2020	Intervention ends early due to COVID-19	-
May–July 2020	Post-intervention mentor survey Post-intervention mentee survey Post-intervention school lead survey Post-intervention school lead interviews	BS
October 2020	Submission of draft report to the EEF	VG; BS
November 2020	Submission of revised report to the EEF	VG; BS

Implementation and process evaluation results

Usual practice and differentiation

- This section discusses 'business as usual' (BAU) science support in schools outside of core lessons and how ASCENTS differs from this.
- ASCENTS provided individualised and more targeted science support for Year 11 pupils compared with schools' usual support for pupils outside of core science lessons. Teacher-led group mentoring and tutoring for science was the most common BAU activity across schools; in contrast, ASCENTS provided one-to-one science support from an undergraduate student.
- The BAU science support schools offered was similar during the intervention year (2019/2020) and in the prior year (2018/19).
- As the trial design involved pupil-level randomisation within schools, BAU applies to pupils in both the intervention and control groups. School lead interviews revealed instances where control group pupils attended BAU activities that the treatment pupils did not attend to avoid overlap with ASCENTS.

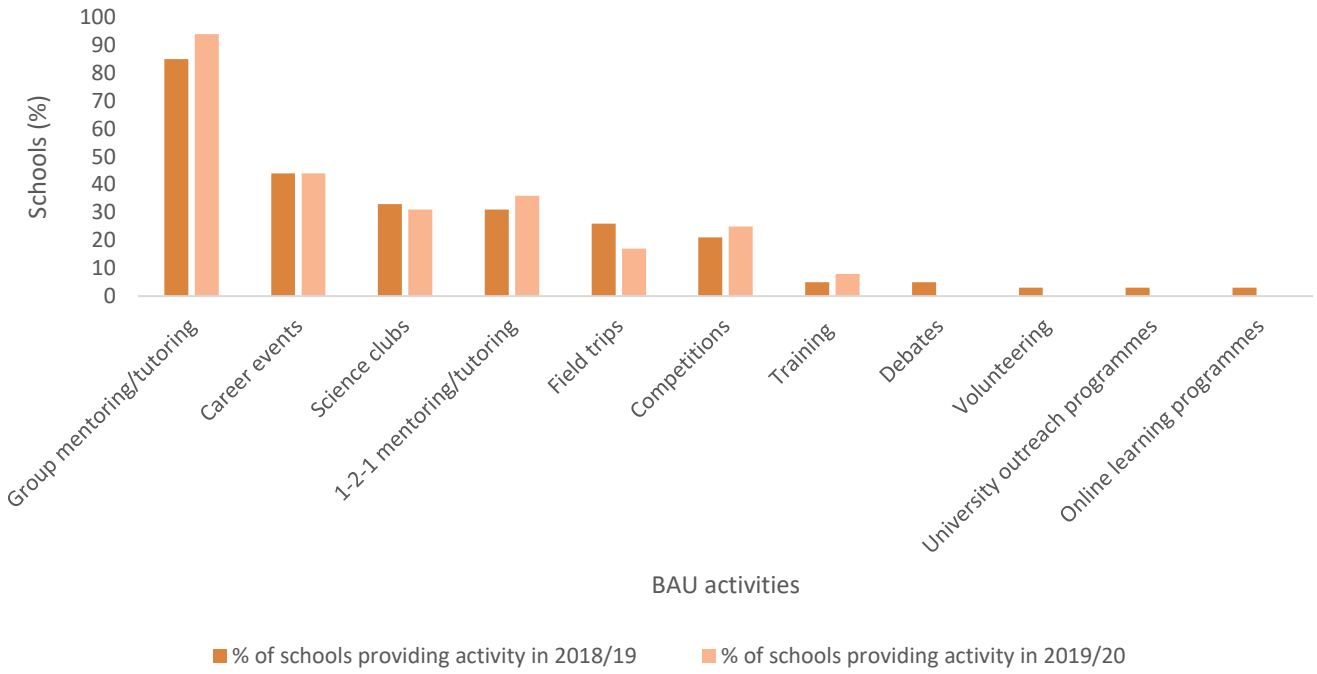
Business as usual support

RQ: What is business as usual?

Science support

Figure 4 shows the BAU science support for Year 11 pupils outside of core lessons in 2018/2019 and 2019/2020.

Figure 4: Business as usual science support for Year 11 pupils in 2018/2019 and 2019/2020
Source: school lead pre-intervention survey.



BAU science support across schools was similar in the intervention year to the year before. Schools offered a range of BAU science support activities. The most common by far was group mentoring and/or tutoring, provided by over three-quarters of schools. One school indicated not offering any science support for Year 11 pupils in the year prior to ASCENTS.

Group and individual science mentoring or tutoring were most commonly aimed at all Year 11 pupils (33.3% in 2018/2019 and 40% in 2019/2020). Around one in five schools targeted BAU science mentoring or tutoring to Year 11 pupils eligible for Pupil Premium or in specific attainment bands, one in ten schools targeted pupils with SEND, and over a quarter selected 'other group(s) of Y11 pupils', which mostly targeted 'underperforming' pupils irrespective of the attainment band. Schools that did not provide BAU mentoring or tutoring in science in 2018/2019 reported that this was mostly due to a lack of staff time (80%).

In interviews, school leads noted that pupil attendance at BAU science mentoring/tutoring sessions was variable, from very low to around a quarter of Year 11 pupils. School leads suggested that pupils in the control group attended BAU science support sessions that intervention group pupils did not join. Reasons for intervention pupil non-attendance to BAU support included BAU sessions taking place at the same time as ASCENTS and schools requesting intervention pupils did not attend other science tutoring.

Support in other subjects (outside of science)

Just under four-fifths (79.5%) of schools provided mentoring or tutoring in subjects outside of science. Mentoring and tutoring in other subjects was most commonly aimed at all Year 11 pupils (41.9% of schools) and was generally teacher-led. Interviewed school leads explained that no non-subject-related mentoring (intended as the provision of support aimed at establishing a role-model relation, see Background section) was provided at their school in 2019/2020. They also explained that pupils in the ASCENTS intervention and control group may have taken part in tutoring in other subjects, but could not say for certain.

Influence of ASCENTS on business as usual and differentiation

RQ: To what extent does ASCENTS differ from business as usual?

All school leads interviewed believed that ASCENTS added to their BAU provision. They noted minor changes to BAU delivery to allow pupils to attend ASCENTS but did not report cancellation of existing school science support. BAU provision mainly involved group mentoring/tutoring and was delivered by teachers. In comparison, ASCENTS appears to have provided more personalised and tailored subject support for pupils. Mentors could be a positive role model for mentees as well as providing the opportunity for mentees to be supported by someone other than their teacher. These findings support the assumptions in the logic model that 'mentees learning is more personalised and targeted', 'mentees ask questions to mentor they would not ask in class', and 'mentors and mentees develop a role model relationship'.

The appeal of ASCENTS

RQ: What were the motivations for universities and schools to take part?

University leads' motivations for taking part in ASCENTS related to benefits for mentors, mentees, the university, and themselves while school leads' motivations focused primarily on achieving positive educational outcomes for mentees.

- *Benefits for mentees.* The programme ambitions aligned with university leads' personal and departmental objectives to improve student outcomes and provide outreach in the local community. University leads anticipated the programme could increase mentee confidence, attitude, and interest in science. Schools' main driver to take part was to improve GCSE science attainment. A targeted and free-to-access intervention for pupils from low-income backgrounds was appealing as such pupils may have less access to educational support at home. Schools and universities anticipated that undergraduate mentors could be important role models to increase mentees' aspirations to attend university, which in turn could support their widening participation agendas.

'We want to get the kids thinking past Year 13 and the more links you can make with university, the better' (school lead 2).

- *Benefits for mentors.* University leads believed the programme could provide mentors with valuable teaching experiences and support progress to teaching and related careers, such as educational psychology.
- *Benefits for the university.* Increased employability of students, through gaining work experience, could benefit the university's reputation.

- *Benefits for university lead*. University leads also suggested that their participation could be beneficial for their own career progression.

Fidelity

This section explores implementation fidelity or the extent to which ASCENTS was delivered as intended.

- Schools and universities delivered ASCENTS with a high degree of fidelity and little variation across school settings. Delivery was supported by clear programme information provided to universities and schools, high levels of attendance, and programme engagement across mentors and mentees.
- The mentor recruitment criteria were revised during the recruitment phase to include mentors with international qualifications. Pupil interest in being a mentee varied across schools, but mentee recruitment approaches were consistent.
- Mentor training and mentoring sessions were delivered consistently and in line with the guidance across settings, with little variation. Mentor and mentee attendance was generally good indicating high compliance. Mentoring session content was mentee-led and mainly focused on science classwork. There was limited evidence of mentors conducting science practical demonstrations, which they were advised against in training for safety reasons.
- Teachers reported that the key challenges to implementation were managing mentee and mentor absences and organising ASCENTS sessions to avoid timetable clashes with other Year 11 activities such as mock exams.

Programme set-up and delivery

RQ: Was ASCENTS implemented as planned by both universities and schools?

Mentor recruitment

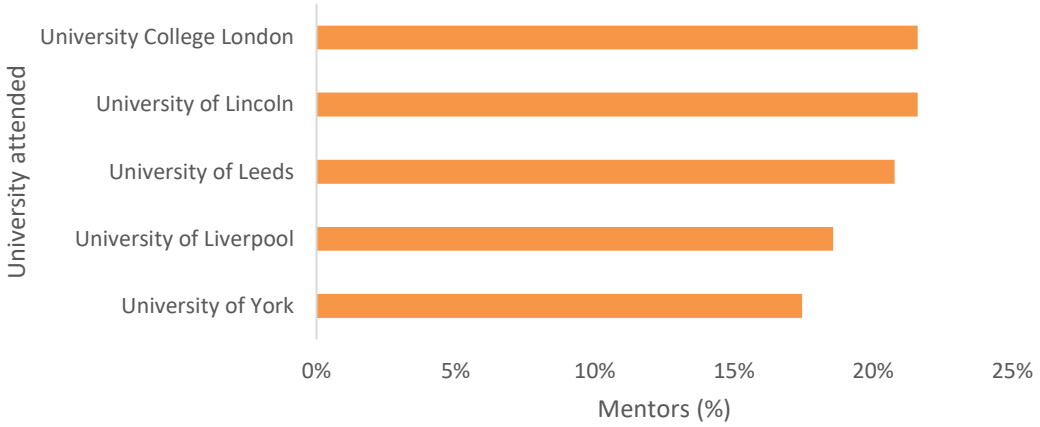
Universities were responsible for recruiting mentors. Eligible students were recruited through STEM departments' online learning platforms, social media groups, and announcements in lectures. University careers services also promoted the opportunity. One university set up a dedicated programme website. Undergraduates registered their interest with the university lead. Leads met interested students to provide detailed programme (and trial) information and to check whether they met the eligibility criteria and were committed to the role.

University leads reported challenges with the mentor eligibility criteria.

- First, the criteria required enrolment on a BSc course, which excluded other STEM degrees (for ecample, BEng) or integrated masters degrees. The criteria were widened to include a broader range of STEM degrees.
- Second, the requirement for science, English, and mathematics GCSEs excluded qualifications such as IGCSE, International Baccalaureate, and BTECS. The criteria were widened to include other qualifications in place of English and mathematics GCSE, but the requirement for a science GCSE remained in place.
- Finally, it was not possible for international students on a tier four visa to obtain a DBS check so these students were unable to take part.

The recruited mentors were more or less evenly split across the five universities delivering ASCENTS (Figure 5).

Figure 5: Universities attended by mentors
Source: mentor pre- and post-intervention survey.



Over half (58.4%) of the mentors were enrolled on a BSc undergraduate course, 26.6% on an MSc integrated masters course, and 15% on other courses (such as BEng/MEng, BPhys/MPhys, and MChem). The most common STEM subjects studied were physics (16.6%), chemistry (14.4%), psychology (10%), biomedical sciences (8.6%), and biology (6.4%). At post-intervention survey, over half of mentors (58.2%) were in their second year while two-fifths (39.4%) were in their third year of study. There were more female (67%) than male (32.4%) mentors (0.6% preferred not to answer). Three-quarters (75.6%) identified as white British followed by 14.1% Asian or Asian British and a small number (4.2%) identified as mixed or multiple ethnic groups—3.9% white other and 1.9% Black African/Caribbean or Black British (0.3% preferred not to answer).

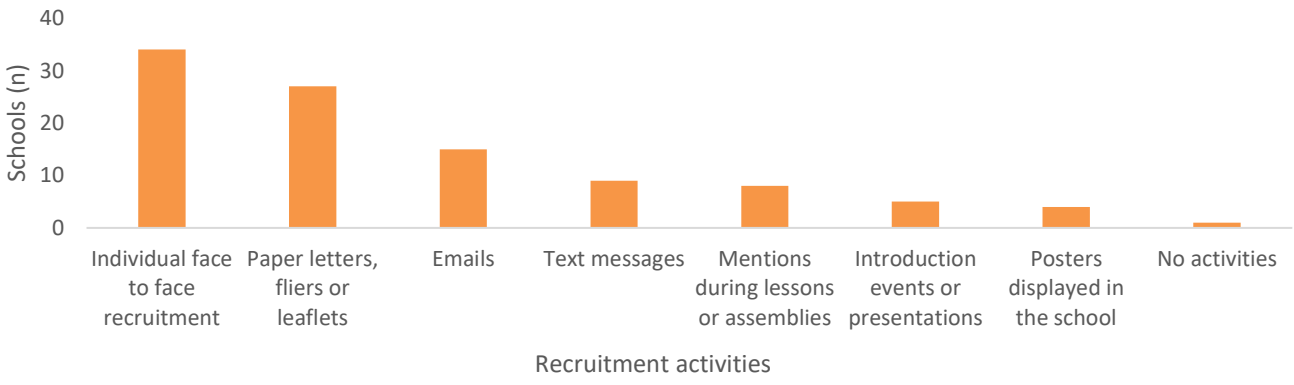
School recruitment

University leads were responsible for recruiting schools. A minority of schools saw the programme advertised on the EEF website and contacted the university. The majority of schools were recruited by the university lead. An effective approach was to involve schools that had an existing relationship with the university.

Mentee recruitment

Schools were responsible for recruiting potential mentees. They shared programme information with eligible pupils and parents/carers. Figure 6 shows the range of ways schools promoted ASCENTS to pupils. The most common approaches were individual face-to-face recruitment (89.5%), distribution of paper letters, fliers or leaflets (71.1%), and emails (39.5%).

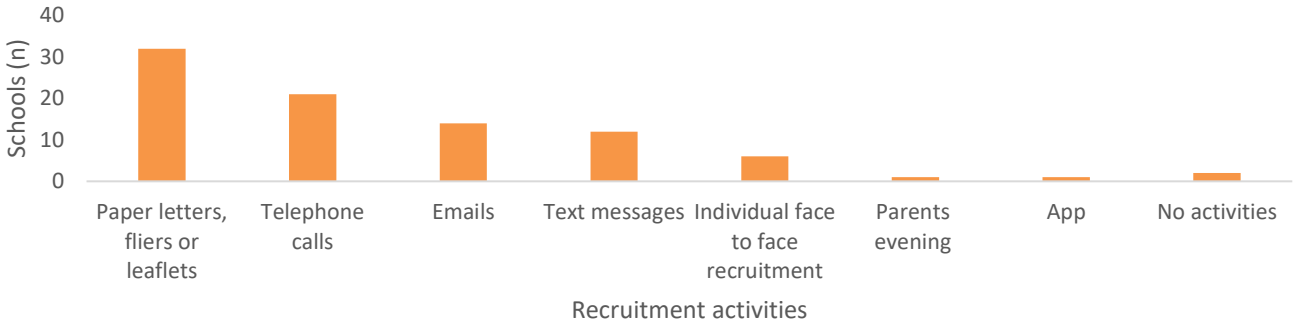
Figure 6: Mentee recruitment activities
Source: school lead pre-intervention survey.



School leads reported a varying level of interest among pupils to take part. In some schools, there was a high level of interest among pupils, which meant pupils who were not eligible and those who were allocated to the control group could be upset. In other schools, school leads reported a lack of interest among eligible pupils due to competing

commitments or difficulties travelling home after mentoring sessions. It was suggested that eligibility criteria could be expanded, for example, to include disadvantaged pupils who were not eligible for Pupil Premium or those with lower attainment. Schools used similar methods to share information with parents and carers (Figure 7). Most common approaches were paper letters, fliers, or leaflets (84.2%), telephone calls (55.3%), emails (36.8%), and text messages (31.6%). School leads observed the importance of having enough time to explain the programme to pupils and parents and of concise information for parents to read.

Figure 7: Parent and carer information activities
Source: school lead pre-intervention survey.



Mentor training and ongoing support

Mentor training

Each university provided mentors with two days of training. Day 1 introduced ASCENTS, covered DBS and paperwork checks for eligibility criteria, and payment information. Day 2 was delivered by the University of Lincoln and a school safeguarding lead and consisted of mentoring and safeguarding training. The training used a combination of presentations, group work, practical exercises, and reflection. Mentor training was found to be delivered consistently across the two courses that were observed. The training appeared to be accessible and pitched at the right level; this was assessed by observing mentor engagement. The trainers used case examples to help make the content engaging and relatable. Trainers communicated clearly and mentors had opportunities to ask questions. During observations, mentors seemed reluctant to ask questions, particularly during whole-group activities, but were highly engaged throughout.

Ongoing support

University leads reported that they intended to provide ongoing support during delivery. Some planned virtual support (using an online platform such as Zoom), others planned face-to-face support via drop-in sessions, training refreshers, and observations. We are unable to report on the support offered as post-intervention interviews with university leads were cancelled to avoid over-burden during the COVID-19 pandemic.

Mentoring sessions

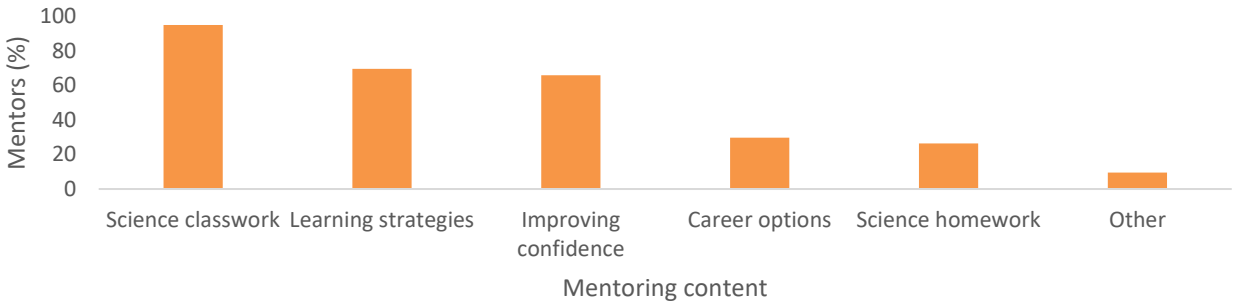
Delivery

School leads commented that delivery instructions from their partner universities had been prescriptive, leaving little opportunity for deviation. We found ASCENTS was largely implemented as intended across schools. Sessions were delivered after school by a large majority schools (94.4%); one school delivered mentoring during the school day, and another timetabled the sessions to start during the final lesson of the day running into after-school time. In a large majority of schools, mentoring lasted for one hour (88.9%); sessions were shorter or longer than one hour in a small minority of schools (5.6%). A large majority of schools delivered ASCENTS in a classroom (81%); other locations included the computer room (11.1%), library (5.6%), sixth-form room (2.8%), or external school buildings (2.8%). In nearly all schools, a science teacher supervised ASCENTS (97.2%). In a small minority of schools, a teaching or learning support assistant (11.1%) or a technician (2.8%) supervised the sessions.

Content of sessions

As shown in **Error! Reference source not found.**Figure 8**Error! Reference source not found.**, a majority of mentors used the sessions to cover science classwork (95.2%), learning strategies (69.7%), and improving confidence (65.9%). Around a quarter of mentors also covered science homework and career options. 'Other' content included exam practice, such as revision and completing past papers. School leads' accounts of mentoring content supported these findings but also suggested deviations in some schools. For instance, one school lead said that mentors delivered practical sessions, which the guidance advised against.

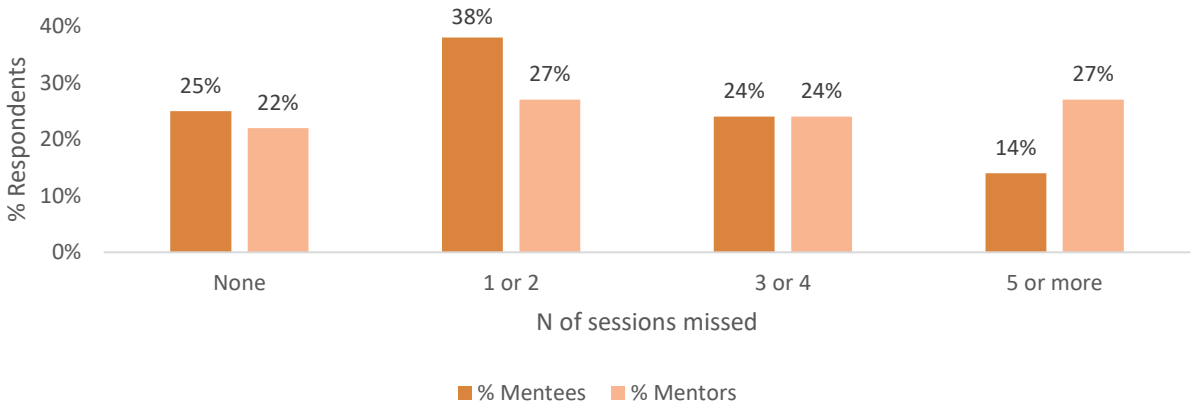
Figure 8: Mentoring content
Source: mentor post-intervention survey.



Compliance

The findings suggest that compliance to the programme was generally high. The number of ASCENTS sessions delivered across schools ranged from 10 to 20, with a mean of 16 (standard deviation: 3). Self-reported attendance was high for mentors and slightly lower for mentees (91.4% and 78.2% of sessions respectively). Attendance of mentors and mentees varied across settings. Among mentees, a quarter self-reported they did not miss any sessions and just over a third (38%) reported missing one or two. Among mentors, about a quarter (22%) self-reported missing no sessions, and 80% reported missing one or more sessions (Figure 9).

Figure 9: Number of ASCENTS sessions missed by mentees and mentors
Source: mentee and mentor post-intervention survey.



Drivers and obstacles to successful implementation

RQ: What were the drivers and obstacles to implementation?

Clear programme information

University leads reported receiving clear programme information and regular contact from the lead delivery partner during the set-up phase. Similarly, school leads said their partner university provided comprehensive information and was responsive to their queries.

Mentee and mentor attendance

School leads explained that mentee engagement was generally high, but there was a minority who had low engagement and session attendance. To encourage attendance, school leads reminded mentees about sessions in person, rearranged activities that clashed with ASCENTS, or contacted mentees' parents.

> *'There were some [mentees] who were just not keen on attending, who where they didn't materialise on time, I just called their parents and said, "They're not here." … and the parents then would call the children and the children would then attend' (school lead 5).*

Mentor attendance was typically high but school leads recalled that mentor attendance was lower in January, which was attributed to university exams. Schools took different approaches to support mentees when a mentor was absent. Variations included pairing a mentee with a different mentor (however, mentees were reluctant to work with an unfamiliar mentor), mentees working independently for a session, or sending the mentee home.

School leads reported difficulties in coordinating mentor and mentee absences. On mentoring sessions days, school leads informed the university lead about mentee school absences and enquired about mentor attendance. School leads managed this alongside their teaching responsibilities. There were instances of mentee and mentor absences not being communicated to the relevant party in advance of the session. School leads suggested developing a more streamlined approach to coordinating mentor-mentee absences.

School timetable constraints

A minority of school leads reported that timetabling constraints were a challenge to the set-up (15.8%) and delivery (19.4%) of the ASCENTS programme. These included challenges to timetabling ASCENTS around Year 11 mock exams and college taster days. At one school, nearly all pupils used the school bus so it was not possible to run sessions before or after school. A small minority of school leads stated that a lack of time to plan was a challenge at set-up (15.8%) and delivery (11.1%).

Mentee engagement

This section explores mentees' perceptions of the intervention and engagement.

- Mentees were generally highly engaged in the programme and during mentoring sessions. Their engagement was supported by the one-to-one format and content being mentee-led.
- A good mentor-mentee relationship was pivotal to mentee engagement. Mentees reported that, on the whole, mentors were friendly, non-judgemental, and able to communicate complex information to support their science learning. Being matched with a mentor of the same gender was not important to all mentees but was stated as a preference by some.
- After-school sessions were necessary to avoid the intervention interfering with curriculum teaching. Mentees reported they felt tired in sessions after long school days. Schools were responsible for organising and monitoring the room. Mentees suggested that sessions should be delivered in a suitable room large enough to accommodate all mentees and mentors.

Perceptions of intervention

RQ: How did mentees feel about mentoring sessions?

RQ: What were the perceived costs and benefits of being an ASCENTS mentee?

RQ: What were the drivers and obstacles to mentees' engagement?

One-to-one format

Overall, mentees viewed the one-to-one format as helpful as it enabled them to ask questions, receive immediate feedback, learn at their own pace, and focus on topics they wanted help with.

> *'It was a good hour of time where I felt safe to say I don't understand something as there wasn't many people around' (mentee survey).*

Mentees with learning difficulties, for example dyslexia, reported it was particularly helpful to receive teaching suited to their needs and learning style. This supports two short-term outcomes in the logic model: 'mentees ask questions to mentor they would not ask in class' and 'mentees' learning is more personalised/targeted'.

> *'. . . because lessons were made to fit around how I learnt in science and therefore, I learnt better' (mentee survey).*

However, a minority of school leads observed that some mentees might find it difficult to adjust to one-to-one work and feel intimidated by the university student.

> *'One-to-one mentoring, I think, does not work for some students . . . they can be quite socially awkward. There is a lot of pressure sitting one-to-one with an adult' (school lead survey).*

A mentee-led approach

Mentees liked directing the sessions and the freedom to focus on topics they struggled or were less familiar with. However, some school leads questioned the mentee-led approach. This was because they suspected that some mentees selected topics they already understood and avoided those they found difficult or did not like. They also observed some mentees struggled to suggest any topics to focus on at all. To overcome this, leads suggested teachers should work with mentors to identify appropriate topics to cover with each mentee.

Mentor's teaching style, relationship, and gender

A large majority of mentees (87%) agreed that their mentor explained things in a way that helped them understand, with only a few mentees reporting that their mentor did not know the answer to their questions or that their mentor prepared content in the sessions. Mentor preparation was appreciated by mentees and criticised where they felt this was lacking. Mentees commonly reported that mentors explained things clearly and broke down complex information, tailored the teaching to mentees' learning preference (for example, by drawing diagrams) and provided reminders about content learnt in previous sessions. This supports a short-term outcome in the logic model: 'mentees' learning is more personalised/targeted'. Mentees felt able to ask questions without judgement or frustrating their mentor. This supports a short-term outcome in the logic model: 'mentees ask questions to mentor they would not ask in class'.

> *'They explained questions and answers in ways that I can understand. They always asked or checked if I had an understanding or what I already knew about the subject, or if there was something that I needed help on' (mentee survey).*

A large majority (95%) of mentees agreed they got on well with their mentor. Mentees noted the supportive, patient, and helpful nature of their mentor. A good relationship with their mentor supported mentees' overall enjoyment and engagement with the programme.

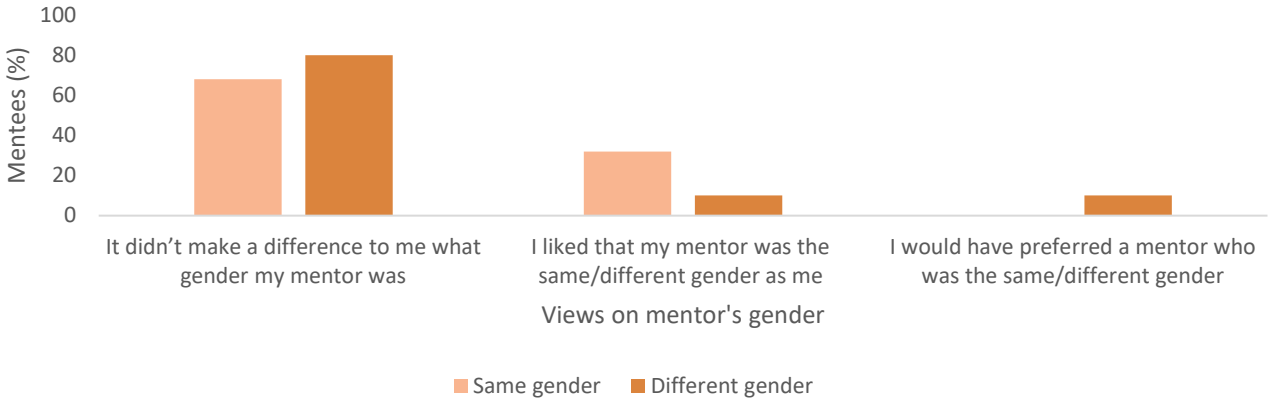
> *'I didn't want to do it and at first I dreaded going, but getting my mentor really helped me enjoyed it' (mentee survey).*

School leads also commented positively on the relationships that were built between mentors and mentees.

> *'On the whole it was just lovely to sit back and watch the university students interacting with our students and building relationships' (school lead 3).*

Post-intervention survey questions attempted to explore whether gender matching between mentees and mentors was an important factor to the mentee-mentor relationship. A majority of mentees did not think the gender of their mentor made a difference to them (Figure 10**Error! Reference source not found.**). This was true among those with a mentor of the same gender (68%) and a different gender (80%). A further 32% of mentees with a mentor of the same gender and 10% of those with a mentor of a different gender liked the mentor being of the same or different gender respectively. In contrast, 10% of mentees paired with a mentor of a different gender would have preferred a mentor of the same gender. It is possible that mentees were in fact reflecting on the quality of relationship with their mentor, and not exclusively thinking about gender pairing when responding to the survey questions. One view among school leads was that same-gender pairings may have been important in some circumstances, for example for female mentees who themselves or their parents stated a preference to be allocated a female mentor.

Figure 10: Views about mentor's gender
Source: mentee post-intervention survey.



Practical considerations: session time, day, and room

The school set the day of the week and time of the mentoring sessions and was responsible for organising and monitoring the room. Mentees reported being tired and found it hard to concentrate during after school sessions. Mentees would have preferred choice over the day of the week the sessions were held to avoid clashes with extra-curricular activities. Around one quarter of mentees reported at least one problem with the room such as it being too noisy (12.7%), too crowded (10%), or too cold (4.5%). Mentees struggled to hear their mentor and concentrate in noisy rooms and felt uncomfortable about people overhearing their sessions in crowded rooms.

Level of engagement

RQ: How engaged were mentees in preparing for, attending, and following up on mentoring sessions?

Attendance

Three-quarters of mentees (75%) missed at least one mentoring session. The most common reason was due to illness (63.2%), mentor absence (36.8%), or clashes with other activities (25%). Around 10% indicated problems with transport to/from mentoring. A further 11.8% reported that their home life made it hard for them to attend; school leads explained that the pupils targeted by the intervention were more likely to have difficulties outside of school. Leads reported additional reasons, such as general low school attendance, mentoring sessions clashing with revision sessions during mock exams, and, in one school, detentions took precedence over ASCENTS sessions.

Engagement in sessions

A large majority of mentees reported a good intervention experience and that they enjoyed the mentoring sessions (82% and 87.1% of mentees respectively). The one-to-one format, mentee-led approach and a good relationship with their mentor all contributed to mentees' engagement. Mentees who did not enjoy the sessions said they were not interesting or engaging. Mentees suggested including games, practical and group activities, and past papers in the sessions to keep them engaged and to help them to better understand concepts.

A large majority of mentors (82.3%) agreed that their mentee was engaged during sessions. School leads also observed high engagement.

> *'[Mentees] were just properly engaged and really interested in what they were being asked and what they were talking about' (school lead 3).*

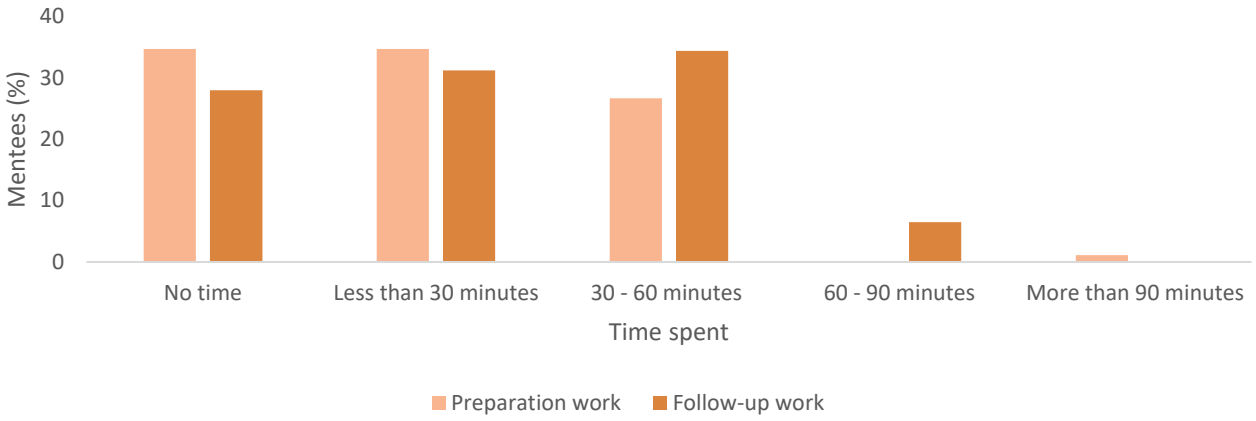
School leads and mentors considered it important for mentees to have a choice about taking part to ensure mentee engagement and to avoid resentment.

Preparation and follow-up work

A majority of mentees spent some time on preparation and follow-up work (Figure 11**Error! Reference source not found.**). Around one third of mentees (34.8%) spent less than 30 minutes on preparation and 29.3% spent between 30

and 60 minutes on weekly preparation. Mentees spent similar amounts of time on follow-up. Just over a third of mentees (34.8%) spent no time preparing and just over a quarter (28%) spent no time on follow-up work.

Figure 11: Time mentees spent on preparation and follow-up work
Source: mentee post-intervention survey.



Mentor engagement

This section describes mentors' perceptions of mentoring training, as well as their views of and engagement with the programme.

- A large majority of mentors felt equipped for the role after the training and enjoyed taking part in the programme. Seeing improvements in their mentees' understanding and confidence in science were important motivators for mentors. Similar to mentees, a good mentor-mentee relationship was integral to a positive intervention experience and achieving the intended outcomes for mentee's science learning and mentor satisfaction.
- Mentors' suggestions for improving the programme included making sure mentee non-attendance is promptly communicated, more guidance and access to science GCSE resources, information about mentees to better support them, and making travel to the schools easier, where possible.

Perceptions of mentor training

Mentors' satisfaction with the trainers and the content of training was high. A large majority of mentors thought the quantity of training was 'about right' (84.7%) and felt 'fairly' or 'very' confident (81%) that the training had prepared them for delivery. Mentors suggested the training could be further enhanced by providing:

- teaching resources (books, flashcards, and revision sheets) and information on where to access these;
- guidance on how to structure sessions, including example lesson structures to assist their planning;
- mentoring techniques and how to engage mentees who were shy, quiet, or unmotivated; and
- an overview of the GSCE science syllabus and the expectations of the different examination boards.

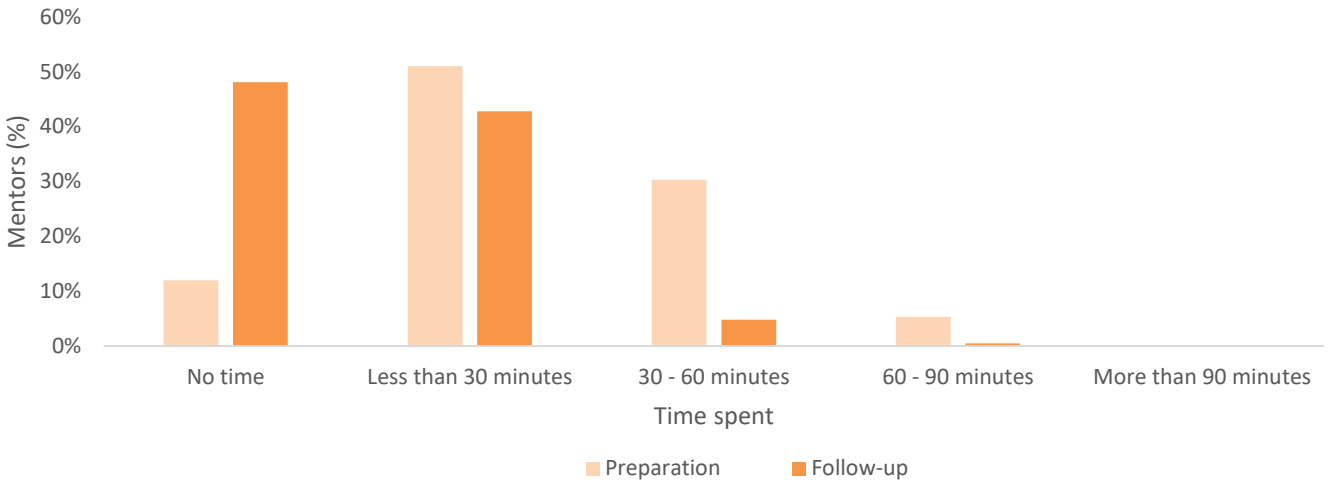
Mentors also suggested that the training could have been more effective had it taken place closer to the start of the programme.

Mentor engagement and time use

RQ: How engaged were mentors in preparations, delivery, and follow up?

A large majority of mentors (85.1%) stayed with the programme until the end, while 14.9% dropped out. There was no noticeable pattern relating to when mentors dropped out. Half of the mentors (51%) said they spent 30 minutes or less preparing for sessions and 30% spent between 30 minutes and an hour (Figure 12). Follow-up work was not as common: nearly half (48.1%) spent no time on follow-up while another 43% spent 30 minutes or less.

Figure 12: Time spent on preparation and follow-up
Source: mentor post-intervention survey.



Mentors' perceptions of mentoring

RQ: How did mentors feel about mentoring?

RQ: What were the perceived costs and benefits of being an ASCENTS mentor?

RQ: What were the drivers and obstacles to mentors' engagement?

Overall mentoring experience

The large majority of mentors said they enjoyed mentoring (90.4% agreed or strongly agreed with this statement); 71.6% said they had a 'good' experience, and a quarter (24%) said they had an 'okay' experience of mentoring (4.4% said they had a 'bad' experience). Mentors enjoyed helping others and making a difference in a young person's life and education, sharing knowledge about topics they were passionate about, learning new skills or refreshing their science knowledge, as well as socialising with the other mentors. Mentors liked getting to know their mentee and seeing the mentee progress and improve their understanding of science concepts was rewarding.

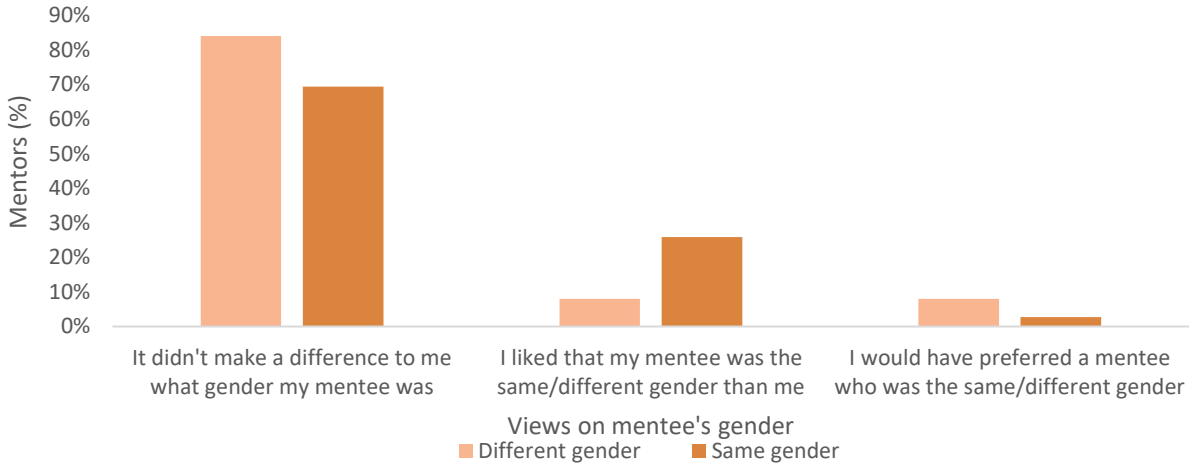
> *'I felt so much pride and joy when I saw my mentees' grades improving' (mentor survey).*

Mentee allocations

Three-quarters of mentors (74%) had the same mentee for the duration of the programme. Changes in mentee allocation were because the mentee could not attend some sessions or had dropped out. A quarter (26%) said they had been assigned more than one mentee during the intervention. The large majority of mentors reported that their mentee paid attention during the sessions (80.8%) and that they had a good relationship with their mentee (85.1%). School leads, too, were largely positive about the quality of interactions between mentors and mentees and thought the pairings worked well.

Around half of mentors were assigned a mentee of the opposite gender (48.1%). The majority of mentors said their mentees' gender did not make a difference to them (Figure 13).

Figure 13: Mentors' views on same and different gender pairings
Source: mentor post-intervention survey.



Obstacles to mentoring

Low mentee engagement

The main reason for not enjoying mentoring was mentee absence. The level of mentee engagement was also a critical factor in shaping mentors' experiences. If the mentee was responsive and motivated to learn, the delivery was described as easy. On the other hand, if the mentee was unmotivated, unfocused, or very shy or quiet, it was felt to be more challenging.

> *'My mentee wasn't always very responsive, so it was hard to tell if I was getting through to them or whether they understood things' (mentor survey).*

Access to GCSE resources and information

While many mentors found the material easy compared to their undergraduate study, many struggled to recall the GCSE material or found that the syllabus had changed since they had sat the examination. Although school leads had been asked to provide mentors with subject-specific resources (such as copies of text books), not having access to enough resources and feeling that the sessions were unstructured were cited as issues for mentors. Mentors did not like it when they felt a topic was outside of their expertise or when they felt unprepared or unable to answer the mentees' questions. Session delivery was supported by teachers who gave them resources or by mentees being proactive in directing the content of the sessions. Some preparation was also considered to facilitate a positive mentoring experience.

> *'My student liked going through exam questions, so all I had to do was bring questions and help her to work through them, explaining anything she struggled with. This didn't require too much preparation' (mentor survey).*

Effective communication skills

Mentors who had prior experience in similar mentoring or teaching jobs reported feeling more prepared for the role. Those without this type of work experience could struggle with explaining science concepts to mentees.

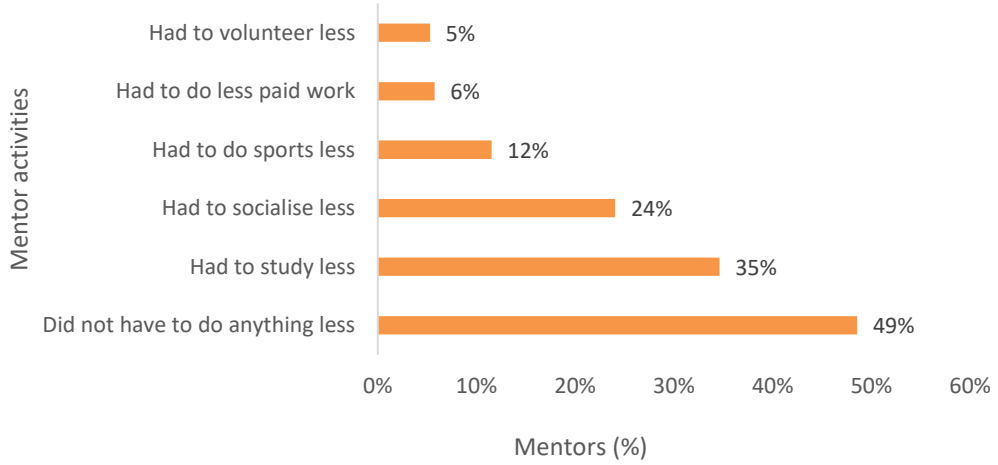
> *'At times it was difficult because the mentee would not understand what I was trying to explain. This made it very frustrating as I was trying to figure out different ways to explain the material' (mentor survey).*

Practicalities: room and time management

A large majority of mentors reported that the allocated school room for mentoring sessions was suitable and did not report any issues with it (80.3%). A small minority said the room allocated was too crowded (8.2%) or too noisy (7.7%). Lastly, a few mentors said the timing of the sessions was not practical or took time away from their studies. A complicated or time-consuming commute to the school was a source of mentor frustration. Half of mentors (48%) said the programme did not take away from other activities they were involved in (Figure 14); a third (34.6%) said they had less time to study

and a quarter (24%) said they had less time to socialise. A small proportion of mentors said that taking part in ASCENTS meant they had less time for sports (12%), less time for paid work outside of ASCENTS (6%), or less time for volunteering (5%).

Figure 14: Mentors' costs relating to taking part
Source: mentor post-intervention survey.



Perceived outcomes and impacts of ASCENTS

This section outlines the perceived outcomes and impacts of ASCENTS for mentees and mentors and the wider outcomes for schools and the extent to which these outcomes map onto the programme logic model (see Figure 1).

- A majority of mentees reported improvements in their interest in, enjoyment of, and confidence in science. Mentees' aspirations for further science study or careers in science remained largely unchanged. Although mentoring had improved their understanding of science concepts, this did not necessarily translate into improved attainment.
- A majority of mentors thought the experience improved their CV and supported development of soft skills. More than half of mentors said it had increased their interest in a teaching career or a career supporting disadvantaged young people.
- Teachers benefitted from getting to know the mentees in mentoring sessions they observed, which in turn improved teacher-pupil relationships and increased pupil confidence to seek extra support from the teacher. However, the planning and organisation of weekly intervention sessions was burdensome for the school lead.
- Schools benefitted from a free intervention that supported science learning among disadvantaged pupils.

Perceived outcomes and impacts for mentees

RQ: What were the perceived costs and benefits of being an ASCENTS mentee?

RQ: What evidence is there of any short, medium, and long-term outcomes and unintended consequences of ASCENTS for mentees?

Mentees and school leads reported that the intervention resulted in a range of positive outcomes for mentees, which map onto the logic model alongside some additional outcomes.

Science interest and enjoyment

A majority of mentees agreed (63.4%) that ASCENTS had helped them become more interested in science. Enjoyment of science lessons showed a positive shift from pre- to post-intervention. A slightly higher proportion of mentees agreed

that they enjoyed school science lessons at post-intervention (pre: 61.4%; post: 73.5%). This provides support for the short- and medium-term impacts in the logic model: 'mentees improve attitude to science in school'.

Attitude to science

Compared with pre-intervention responses, fewer mentees agreed that it is important to do well in science at post-intervention. However, around two-thirds of teachers (61.1%) reported an improved pupil attitude to science in school. These findings should also be considered in the context of Covid-19-related cancellations of GCSE exams. A smaller proportion of teachers (22.2%) reported an improved pupil attitude to science outside of school. It is not clear how teachers made this assessment.

Mentees were asked if they worked as hard as they could in science lessons: their self-reports were similar at pre- and post-intervention. At both time points, a majority of mentees agreed that they worked as hard as they could (pre: 78.3%; post: 75.9%).

A higher proportion of mentees thought they were currently doing the best they could in GCSE science at post-intervention (pre: 18.1%; post: 36.1%) and a lower proportion thought they could do better (pre: 74.7%; post: 60.2%; Table 36). In line with this, school leads reported that mentees appeared more motivated during science lessons.

> *'The students that I teach … I would say, [they are] more motivated, more positive, more can-do' (school lead 3).*

Confidence in science

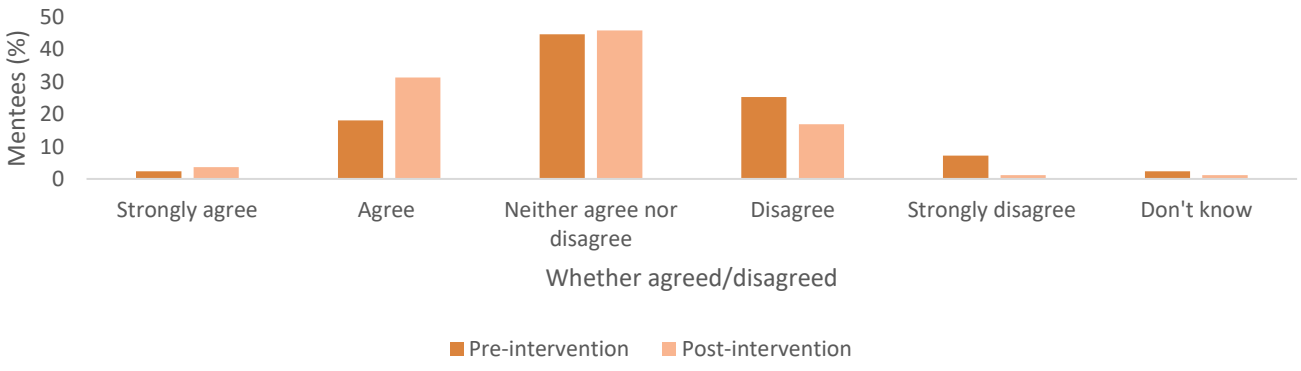
A large majority of school leads reported that ASCENTS had resulted in nearly all mentees having improved confidence in science (94.4%) and around two-thirds demonstrated improved self-confidence (63.9%). School leads said that mentees answered more questions in lessons. This supports a medium-term outcome in the logic model: 'mentees improve science self-concept'.

> *'There was a kid who I had in third-from-the-bottom set in Year 11 … He started answering questions in class. His confidence went through the roof and I hope that did spread across the other subjects' (school lead 2).*

Science understanding and attainment

Mentees reported that mentoring had led to an improved understanding of science, especially for topics they had struggled with or had missed teaching on. This supports the short- to medium-term outcome in the logic model: 'mentees improve contextual understanding of science'. Data showed a shift towards mentees agreeing that they 'generally get good marks' in science at post-intervention (Figure 15). A higher proportion of mentees agreed (pre: 20.5%; post: 34.9%) with this statement at post-intervention.

Figure 15: Mentees agreeing/disagreeing they generally get good marks in science assessments
Source: mentee pre- and post-intervention survey.



A higher proportion of mentees also expected to achieve the grade they were predicted (pre: 39.8%; post: 61.4%) at post intervention. This finding should be considered in the context that mentees would have known that GCSE

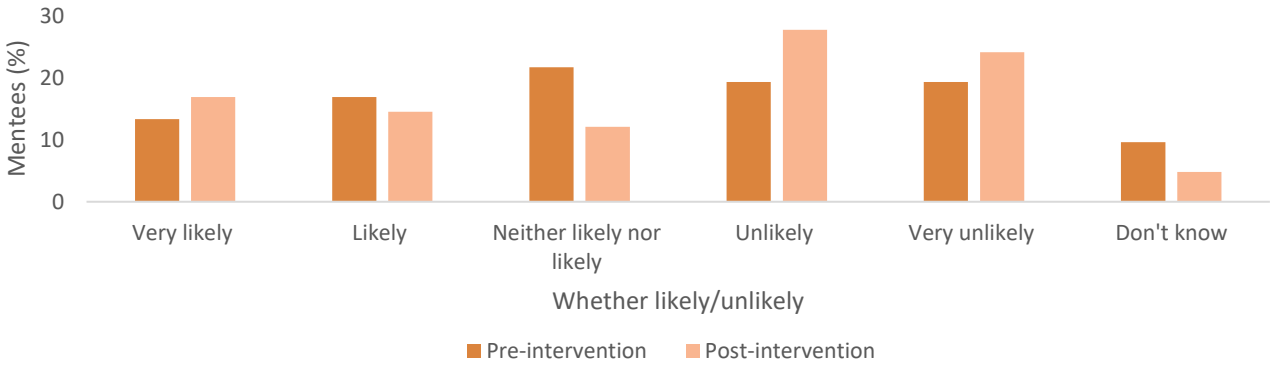
examinations would not take place due to the COVID-19 pandemic and that results would be based on teacher assessments, which might have influenced their expectations. A similar proportion at both time points thought they would get a higher grade than predicted (pre: 21.7%; post: 19.3%). A large majority of mentees (90.8%) agreed, post intervention, that ASCENTS would improve their GCSE science grades. Mentees who thought they would do better attributed this to an improved understanding of science and retention of information. This supports the logic model pathway, which expects mentees to achieve higher science GCSE grades through 'improved conceptual understanding of science'. Mentees who did not think their grades would improve (9.2% of mentees) held the view that they had not learnt much from their mentoring sessions.

Over two-thirds of school leads (69.4%; 36 schools) thought that pupils improved their understanding of science by taking part in ASCENTS. Less than half of the school leads reported pupils' improved attainment in science (38.9%) or improved mock science GCSE grades (44.4%) as a benefit of ASCENTS. Furthermore, only four school leads (11.1%) reported pupils' higher grades in GCSE science as a benefit. Again, it should be noted that leads were aware that GCSE examinations would not take place in summer 2020, which, although we consider that teacher assessments are also rigorous, might have influenced their expectations.

Aspirations in science and further study

At post-intervention, a fifth of mentees (20.2%) agreed that mentoring had made them more likely to study science after GCSE. More generally, the shift was in the opposite direction with a higher proportion thinking it was unlikely (pre: 38.6%; post: 51.8%; Figure 16). The proportion of mentees who said they 'don't know' or were 'neither likely or unlikely' to study science after GCSE also dropped at post-intervention (pre: 9.6%; post: 4.8% for 'don't know', and pre: 21.7%; post: 12% for 'neither likely nor unlikely'). It is unclear if this change in attitudes to studying science after GCSEs can be attributed to the intervention or is due to increased developmental maturity. While this finding does not appear to support one of the expected impacts in the logic model—'mentees are more likely to take up science at AS- and A-level'—an assessment of this outcome would require analysis of actual subject selection at AS- and A-level, which were not collected as part of this study.

Figure 16: Mentees views on the likelihood of them continuing to study science after GCSEs
Source: mentee pre- and post-intervention survey.



There was an increase in the proportion of mentees who said they might want to go to university (pre: 28.9%; post: 45.8%). A similar proportion of mentees had not thought about progressing to university at all at both pre- or post-intervention (pre: 10.8%; post: 8.4%) or said they 'definitely' wanted to go to university (pre: 42.2%; post: 39.8%). Again, it is unclear if reported changes in aspirations to go to university can be attributed to the intervention.

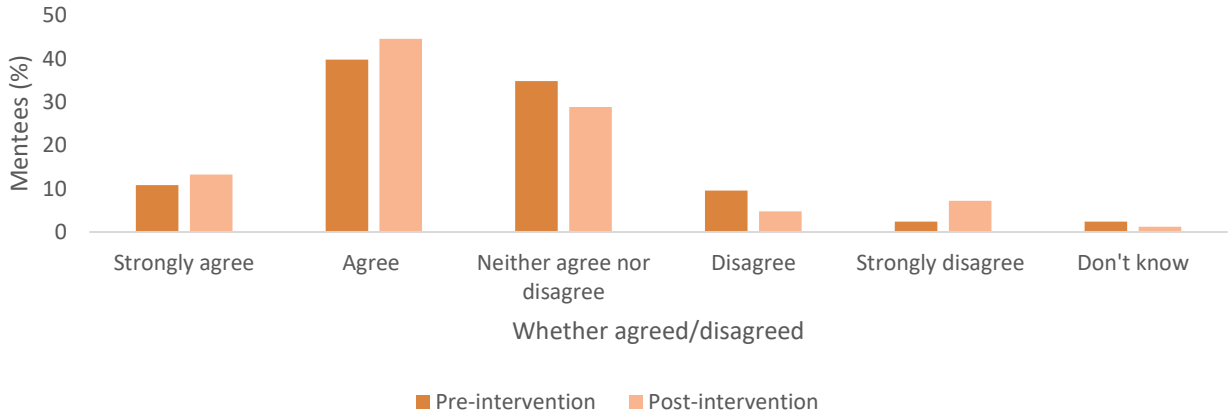
Post intervention, a slightly higher proportion of mentees reported they 'might' want to do a job in science (pre: 34.9%; post: 39.8%) or they did 'not' want to do a job involving science (pre: 22.9%; post: 27.7%), while a similar proportion of mentees at both pre and post intervention reported they 'definitely' wanted to do a job in science (pre and post: 16.9%). This suggests that taking part in ASCENTS may have contributed to defining expectations (whether positive or negative) about doing a job involving science. It is, however, unclear if these shifts in aspirations for a science related job can be attributed to the intervention or are due to increased developmental maturity over time.

School leads had low expectation of mentees studying science after GCSE with a small minority (8.3%) reporting that ASCENTS had resulted in increased science aspirations and a likelihood of taking up further study of science at post-intervention. One of the reasons provided for this was that mentees' expected grades were lower than the requirement for science A-levels, and that this would inform their aspirations and decision-making.

Attitudes to school

A positive shift was observed towards mentees agreeing that they enjoyed school at post-intervention (pre: 50.6%; post: 57.9%; see Figure 17**Error! Reference source not found.**). However, in contrast, a higher proportion of mentees reported they strongly disagreed they enjoyed school at post-intervention (pre: 2.4%; post: 7.2%).

Figure 17: Mentees agreeing/disagreeing they enjoy school
Source: mentee pre- and post-intervention survey.



A small minority of school leads reported improved pupil school attendance on days of ASCENTS sessions or increased motivation to study all subjects (13.9%). School leads were unable to comment on outcomes in other subjects as they taught science only.

Improved social skills and maturity

Mentees reported that their interactions with a university student had improved their social skills with adults.

> *'It helped me improve science and also my social skills with the adults' (mentee survey).*

Similarly, school leads reported that spending time with a university student, and away from their peers, had supported mentees to develop their maturity. These additional outcomes were not listed in the logic model.

Disadvantages and unintended consequences

The majority of school leads reported there were no disadvantages for pupils taking part in ASCENTS (75%). However, six school leads (15.8%) stated that mentees' attention was diverted away from other subjects and that they were unable to attend other revision sessions. One school lead commented that some mentees had developed a resentment to science because they felt they had to attend ASCENTS sessions.

Drivers and challenges to mentee outcomes

RQ: What are the drivers/obstacles to positive outcomes?

School leads identified particular benefits for groups of pupils.

Gender

School leads reported different benefits for boys and girls (46.8% of the mentees identified as male, 51.8% identified as female, 0.7% as other and 0.7% preferred not to answer). They explained that boys were typically harder to involve in school work than girls and their participation was therefore thought to be beneficial. Leads also believed that one-to-one support for boys, away from their peers, would benefit their learning. Benefits for girls related to increasing their

confidence and science aspirations. A school lead explained that having female mentors was encouraging for female mentees because it demonstrated that women can succeed in science.

Prior attainment

Schools leads reported that prior attainment influenced pupil outcomes. Pupils with low prior attainment showed an increase in confidence, while pupils with high prior attainment made more progress.

Attendance and mentor-mentee relationship

School leads stressed that motivation to attend the programme and continued engagement were linked to positive outcomes. The quality of the mentee-mentor relationship was thought to influence mentee outcomes. Schools leads also speculated that mentees who had an engaging mentor would be more likely to have positive outcomes.

> *'If the mentors are really up for it and really get involved in it, then they are going to work well and that is going to affect how effective they were' (school lead 2).*

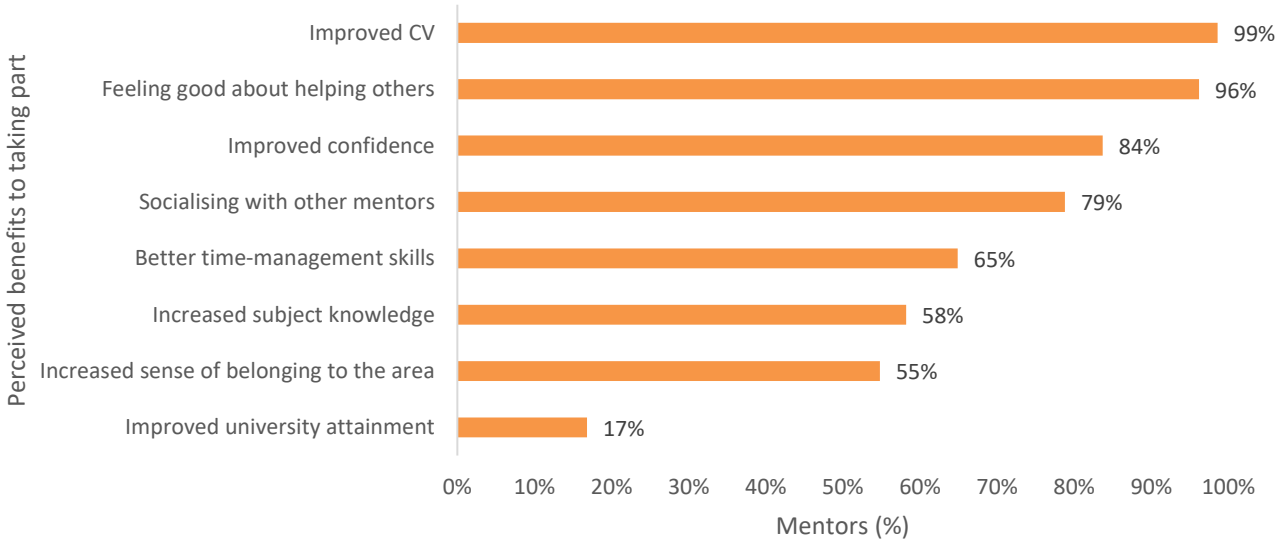
Perceived mentor outcomes and impacts

RQ: What were the perceived costs and benefits of being an ASCENTS mentor? What did mentors learn?

RQ: What evidence is there of any short, medium, and long-term outcomes and unintended consequences of ASCENTS for mentors?

The main perceived benefits of taking part in ASCENTS were an improved CV (98.6% of mentors) and feeling good about helping others (96.2% of mentors; Figure 18). Mentors observed other benefits to taking part, including the development of soft skills such as improved confidence and socialising with mentors. At post-intervention, over half of mentors (58.2%) said their subject knowledge had increased following ASCENTS. However, this did not necessarily translate into improved attainment, with less than a fifth (16.8%) reporting that their university attainment had improved. Over half (55%) reported an increased sense of belonging to the local area as a result of taking part in ASCENTS.

Figure 18: Perceived benefits to taking part
Source: mentor post-intervention survey.



A medium-term outcome for the programme was increasing mentors' interest in teaching and other career pathways supporting disadvantaged young people. The programme appears to have been effective on both counts. More than half (53.9%) said it had increased their interest in teaching 'somewhat' or 'a lot' and 64.4% said the same about careers supporting disadvantaged young people. On the other hand, 13% said it had decreased their interest in teaching 'somewhat' or 'a lot' and 3.9% said the same about careers with disadvantaged young people.

Perceived effects on classroom dynamics

RQ: What is the perceived effect of ASCENTS on classroom learning dynamics?

The majority of school leads (77.8%) assessed the satisfaction of pupils in the treatment group to be high. School leads reported that most mentees had engaged well with the programme, had welcomed the extra support, enjoyed the sessions, and found them useful. Dissatisfied pupils did not find the sessions useful or found the overall programme too long.

Almost all school leads (35/36) confirmed that pupils in the control group did not take part in ASCENTS. The majority of leads (30/36 schools) did not know if there had been any spillover effects between treatment and control groups in the form of pupils sharing learning from their mentoring sessions. One school lead had seen this happen within a friendship group but not across the wider class. However, half of the mentees (50.5%) said they shared learning from ASCENTS with other pupils not receiving the programme.

Perceived effects on schools and teachers

RQ: What is the perceived effect of ASCENTS on schools and teachers?

Schools

There were three main benefits for schools highlighted by the school lead interviews:

- the benefit of targeting disadvantaged pupils, either because it aligned with school priorities or because the programme was the first of its kind to be provided in the school;
- school leads saw benefits in raising pupils' aspirations to go to university and felt that if more pupils went to university, this would be positive for the school's reputation; and
- it was considered beneficial for the school to promote the ASCENTS support to parents, to bolster the school's reputation for working with external organisations like universities, and providing outreach opportunities for pupils.

Teachers

School leads observed that mentees' confidence and understanding of key concepts in science had improved, which translated into positive behaviour in the classroom. Leads found that the programme had improved their relationship with the mentees. Supervising the mentoring sessions had given them more opportunities to have one-to-one conversations with mentees, which helped in getting to know pupils better outside of the classroom environment. One view was that mentees were more comfortable approaching the science teacher who had supervised the sessions for extra support outside the programme.

> *'It improved their confidence with being able to approach me about things, and they felt more comfortable coming to approach me if they didn't understand something' (school Lead 3).*

School leads agreed that the main drawback for teachers was the time it took to supervise the sessions and the administrative tasks of organising the sessions, including ensuring mentees were in school and attended sessions. Liaising with the partner university (and NatCen) was time-consuming. In a small number of cases, school leads said that the quality of mentoring was poor and that it created additional work for them to provide mentors with learning resources.

Overall views of the programme

School leads were positive about ASCENTS: 30 school leads across 36 schools said they would recommend the programme to other schools. This was because they had observed a positive change among mentees' science learning, confidence, and aspirations. School leads also provided a number of suggestions they thought could improve the programme (although these were not trialled), including:

- directing mentors to pupil's learning objectives rather than relying on a pupil-led approach;
- training mentors on teaching and mentoring techniques and improving their knowledge of the GSCE-level subject specifications;

- improving communication between mentors and teachers about absences;
- creating opportunities for schools participating in ASCENTS to share learning on delivery, including encouraging mentee attendance; and
- allowing schools to be involved in mentor selection;
- extending the programme beyond disadvantaged pupils to benefit a wider cohort; and
- giving mentors more than one pupil to support.

Conclusion

Key conclusions

1. The intervention was very well-received by school leads, mentees, and mentors and was implemented as intended with little variation across settings.
2. Key perceived benefits for mentees, as reported by mentees and school leads, included increased understanding of science, enjoyment and interest in science, confidence (for example, asking questions in class), social skills, and maturity in interacting with adults. Unfortunately, due to the cancellation of GCSE exams in 2020, we are not able to estimate the impact of ASCENTS on mentees' academic attainment.
3. Key perceived benefits for mentors included feeling good about helping their mentee and valuable work experience that improved their CV. More than half (53.9%) said it had increased their interest in teaching 'somewhat' or 'a lot' and 64.4% said the same about careers supporting disadvantaged young people.
4. A good relationship between mentors and mentees and a positive experience of mentoring were seen to be important to achieving the intended outcomes. Mentor preparation and mentee engagement appeared to facilitate a positive experience of mentoring. Mentees were generally highly engaged in the programme and during mentoring sessions. Their engagement was supported by the one-to-one format and the onus on the mentee to lead the session content. Mentees generally liked the opportunity to decide which topics to cover in the sessions.
5. Some school leads thought there were limits to the mentee-led learning approach and would have liked more involvement, working with mentors to direct the content of sessions. School leads agreed that the main drawback for teachers was the time it took to supervise the sessions and the administrative tasks of organising the sessions, including ensuring mentees were in school and attended sessions. Mentors showed a commitment to their role and wanted more guidance (as part of the mentor training and overall programme) on the GCSE science syllabus, resources, and pedagogical approaches to optimise the sessions.

Implementation and process evaluation findings

Evidence to support the logic model

Table 5: Evidence to support the logic model

Participant	Measurement tool	Outcome	Level of evidence
Mentees	School lead pre- and post-intervention surveys; school lead interviews; mentee post-intervention survey	Mentees have additional exposure to science	Strong
	School lead pre- and post-intervention surveys; school lead interviews; mentee post-intervention survey	Mentees' learning is more personalised/targeted	Strong
	School lead interviews	Mentees improve school attendance on days of one-to-one sessions	Weak (low validity and reliability of measurement)
	Mentee post-intervention survey	Mentees ask mentor questions they would not ask in class	Moderate
	School lead post-intervention survey; school lead interviews; mentee post-intervention survey	Mentees improve conceptual understanding of science	Strong
		Mentees improve attitude to science outside school	Weak (low validity of measurement)
		Mentees improve attitude to science in school	Strong
		Mentees improve science self-concept	Mixed
		Mentees have higher science aspirations	Mixed

		Mentees improve science performance	Mixed
		Mentees improve mock GCSEs	Weak/moderate (performance data not collected)
		Mentees more motivated to study all subjects	Weak (low validity of measurement)
Mentees and mentors	N/A (intended to be measured through mentee focus groups)	Mentors and mentees develop role model relationship	N/A
Mentors	Mentor pre- and post-intervention surveys	Mentors increase their knowledge of science	Moderate
		Mentors increase their overall attainment	Weak
		Mentors increase sense of belonging in local area	Moderate
		Mentors increase their interest in teaching	Strong
		Mentors develop interest in career supporting disadvantaged students	Strong

Areas of the logic model with strong or moderate evidence

Overall, evidence from the IPE supports the programme logic model. All intended activities were delivered with the exception of some final sessions and the revision day. These cancellations were due to COVID-19 and therefore outside of the developers' control. The findings from the school leads show that the delivery of ASCENTS was broadly consistent across settings and in line with the guidance provided by the developers (for example, in terms of length and timing of sessions). The research with mentors and schools also indicates that the content of mentoring sessions generally reflected the guidance given during the mentor training. These findings suggest that overall there was a high level of implementation fidelity to the ASCENTS model.

There is evidence in support of a number of short- and medium-term outcomes for mentees set out in the logic model. The findings on usual practice confirmed that ASCENTS provided mentees with additional exposure to science, but they also revealed that control group pupils accessed business as usual science support that the treatment group chose not to attend. The one-to-one format of sessions supported mentee learning to be more personalised and targeted compared to business as usual provision, which mostly involved group mentoring and tutoring.

Mentees generally liked the opportunity to decide which topics to cover in the sessions. Evidence from school leads and mentees indicated that mentees asked their mentor questions they would not have asked in class This outcome was facilitated by intervention delivery by someone external to the school, as opposed to BAU mentoring/tutoring delivered by teachers or teaching assistants. Mentees reported that mentors were friendly and non-judgemental.

School leads noted that positive mentee-mentor relationships led to positive outcomes for mentees, including increased understanding of science, a more positive attitude to science, and confidence (for example, asking questions in class). Mentees who enjoyed the ASCENTS sessions reported an increased understanding of science. Mentee surveys also indicated an increased enjoyment and interest in science overall since taking part. Mentors highlighted that preparing well for sessions, coupled with mentee engagement, were crucial to facilitating delivery and making sessions enjoyable. Mentors suggested being provided with further resources and guidance on how to engage shy and less-engaged pupils.

Mentors perceived taking part in ASCENTS to benefit their CV and they also felt good about helping their mentee. Mentors were also motivated by supporting disadvantaged young people and helping them with STEM subjects. They enjoyed establishing a good relationship with their mentees and observing their progress in science. Taking part in ASCENTS increased mentors' interest in teaching if they had a positive experience, but could make them realise teaching was not for them if they had a challenging programme experience. Over half of mentors reported that taking part in ASCENTS had increased their interest in teaching as a career, however just below a fifth said it had decreased their interest. Furthermore, an even higher proportion of mentors stated that ASCENTS had increased their interest in a career supporting disadvantaged young people. There was some evidence of mentors' benefiting from taking part by increasing their science knowledge and sense of belonging to the local area, each reported by just over half of mentors.

Areas of the logic model with mixed or weak evidence

- While fidelity of implementation to the ASCENTS model was broadly high, there were a few instances where the content of sessions deviated from guidance (for example, some sessions included practical activities). There was also variation across schools in how mentor or mentee absences were dealt with.
- Some school leads challenged the intervention model. They noted that one-to-one sessions may be intimidating for some mentees and observed that the mentee-led approach may not always be beneficial. On the contrary, mentees reported that they valued having a say in the content of the sessions, which improved their engagement. This approach was also used in the intervention pilot study which showed statistically significant improvements in mentees' GCSE science grades. This model and the rationale that underpins it may therefore need to be justified to teachers so they fully understand the approach.
- IPE data for mentee school attendance was lacking. A small minority (13.9%) of school leads reported improved pupil school attendance on days of ASCENTS sessions, however we did not assess this using attendance data.
- Developing a role model relationship between mentees and mentors appeared to be highly subjective and difficult to assess through survey research. School leads suggested that having a female mentor could be encouraging for female mentees as it showed that women can succeed in science. A majority of mentees and mentors reported that same gender pairing between mentees and mentors did not matter to them.
- A majority of mentees thought ASCENTS had contributed to improving their grades in science GCSE, with a higher proportion of mentees reporting they did well in science assessments at post-intervention. However, less than half of school leads reported mentees had improved science attainment in assessments and mock exams, and only a small minority indicated that mentees achieved higher grades in GCSE science.
- A minority of mentees and school leads thought that mentoring had increased mentees' motivation to study science beyond GCSE-level. School leads highlighted the importance of expected grades—which were established early in Year 11—in informing plans for studying science at A-level. There was also no evidence that mentoring had contributed to increase mentees' motivation to study other subjects such as English or maths.
- The evidence regarding the effect of ASCENTS on mentees' aspirations for science-related undergraduate study and careers was mixed. A slightly higher proportion of mentees said it was unlikely they would study science beyond GCSE at post-intervention compared with pre-intervention (pre: 38.6%; post: 51.8%) while a slightly higher proportion also said they might go to university or do a job involving science. It is unclear if changes in aspirations can be attributed to taking part in ASCENTS. Furthermore, mentees may still be forming their decisions around university and career decisions at this stage.
- While over half (58.2%) of mentors mentioned increased science knowledge as a benefit of ASCENTS, only a small minority (16.8%) thought they benefitted in terms of improved university attainment.

As the impact evaluation was cancelled, we were unable to assess the extent to which ASCENTS had the intended impact on mentees. The impact of ASCENTS on mentors' likelihood of entering the teaching profession will be assessed through follow-up research to be conducted in 2021–2025.

Additional considerations for the developers

- The findings indicate that school leads have a considerable administrative role in the running of the activities, including setting up sessions, communicating with universities, and monitoring and managing attendance.

- Information from mentees and school leads suggested that there were additional outcomes for mentees that were not included in the logic model. This includes perceived improvements in mentees' social skills and maturity through interacting with their mentor.
- ASCENTS appeared to provide opportunities for the supervising teachers to observe and interact with mentees outside of the classroom. School leads noted that as a result, mentees felt more confident to seek science support from the supervising teacher.
- The majority (75%) of school leads thought there were no disadvantages for mentees taking part in ASCENTS, however, a small minority (15.8%) observed that mentees diverted attention away from other subjects. They also noted that mentees were unable to attend other revision sessions offered by the school. Mentees did not report these disadvantages.
- Some school leads were concerned that mentees who did not enjoy the sessions could develop a wider resentment to studying science at all. Some mentors also expressed concerns that mentee attendance appeared to be enforced by schools and therefore mentees may have felt obliged to attend rather than attending because they were self-motivated. Mentees' choice and agency in participating in the programme could benefit from being reviewed.

Interpretation

ASCENTS is an academically asymmetrical paired mentoring programme, which although providing subject-specific support aims to do more than just tuition. While any comparison with available studies of mentoring and tutoring programmes requires caution, the findings do still have relevance to those associated with programmes of this type. The findings from the ASCENTS IPE confirm existing evidence from evaluations and meta-analyses of mentoring and tutoring programmes about implementation challenges, mentees' and mentors' responsiveness, and wider outcomes. They also contribute to this evidence base through novel insights and areas for further investigation. As the impact evaluation was cancelled, it is unfortunately not possible to comment on the extent to which these factors may have influenced the effectiveness of the programme.

Implementation

In line with findings from the evaluations of ThinkForward and Paired Reading, we found that the room used for ASCENTS was seen in a small number of cases as being too noisy (12.7%) or crowded (10%), which could make it difficult for mentees and mentors to concentrate (Demack, McCaig et al., 2016; Lloyd, Edovald et al., 2015a).

Mentee engagement

The findings in this report confirm the importance of the following factors highlighted by available studies of mentoring and tutoring for mentee engagement:

- the provision of training, ongoing support, and information for mentors (DuBois *et al.*, 2002; Leung, 2015);
- mentee autonomy in setting goals (Rohrbeck *et al.*, 2003; Ginsburg-Block *et al.*, 2006);
- tailored teaching and evaluation (Rohrbeck *et al.*, 2003; Ginsburg-Block *et al.*, 2006); and
- structured activities for mentors and mentees (DuBois *et al.*, 2002; DuBois and Rhodes, 2006; Ginsburg-Block *et al.*, 2006; Leung, 2015).

Previous research has also indicated the desirability of manualised information and training for teachers delivering the programme in schools (DuBois et al., 2002; DuBois and Rhodes, 2006). Evidence from ASCENTS about school leads' views on the mentee-led learning approach suggests that information for teachers supervising the programme may be especially beneficial. Similar to Marshall et al. (2021), we found that pupils generally appreciated the one-to-one format and tailored content of sessions, although some could consider this intimidating and miss group interaction. Also in line with these authors, we found rapport and a good relationship with their mentors to be crucial for mentees' engagement. We did not find evidence of same-gender pairings being related to higher mentee engagement (Ginsburg-Block et al., 2006). The findings from school leads also suggest that gender pairing may be especially important for females'

confidence and expectations, supporting Archer et al. (2010) on the gendered nature of young people's constructions of science, identity, and career expectations. More qualitative research with mentees would be useful to substantiate these findings.

Similar to Sharpe et al., (2018), we found that one-to-one academic mentoring may have a positive effect on several pupil attitudinal outcomes, including interest for, and enjoyment of, science. Evidence from ASCENTS also highlights the importance of a positive mentoring relationship and experience, and of expected science grades in informing pupils' attitudes to 'pursuing further a scientific education and scientific career'. The findings also suggest a positive effect of mentoring on non-academic outcomes such as social skills, confidence, and maturity (Ginsburg-Block et al., 2006). Views on the effects of ASCENTS on pupils' grades were more mixed and the impact of the programme on science, maths, and English GCSE attainment could not be tested due to the impact evaluation being cancelled. For the same reason, it was not possible to test the impact of ASCENTS on the likelihood of pupils pursuing science at A-level. Finally, there was no evidence of higher levels of study-related stress and lower levels of overall wellbeing and self-esteem among mentees (Lee 2013; Song et al., 2018). However, mentees mentioned feeling tired after a full school day and some school leads expressed concerns about mentees' possible resentment for science due to feeling obliged to attend the sessions. Findings from the National Online Tuition Pilot (Marshall et al. 2021) show that due to its nature, home-based online delivery can provide more flexibility around the timing of session, although it also highlights that most learners would still have preferred in-person tutoring if given the choice. Unintended negative consequences, and how these may be redressed, are worth further investigation through qualitative research with mentees.

Mentor responsiveness

The evaluation of ASCENTS provides an important contribution to the scant literature on mentors' outcomes. The findings from mentors' self-reported data suggest an increase in science knowledge due to taking part in ASCENTS but provide more limited support for increased university attainment. In line with Sharpe et al., 2018, they also indicate that participation is likely to increase mentors' interest in teaching and a career supporting disadvantaged young people. An improved CV was cited by mentors as the main benefit of ASCENTS, which may facilitate their pathways into this type of career. NatCen aims to investigate these processes in more depth through follow-up surveys with mentors and the analysis of national data on progression into teaching. The findings will be published as an addendum to this report.

Wider outcomes

The ASCENTS IPE also explored the possible effects on pupils not taking part and on school leads and supervising teachers. Similar to other studies (Opper, 2019), we found some evidence of contamination with 50.5% of the mentees who took part in the post-intervention survey saying they shared learning from ASCENTS with other pupils not receiving the programme. Adding to existing literature, we found both benefits and costs of taking part in ASCENTS for school leads and supervising teachers. Participating in the programme added to the staff administrative workload, especially in terms of setting up sessions and ensuring and monitoring attendance. However, supervising teachers were also able to develop important relations with the mentees outside the classroom, which both pupils and teachers appeared to benefit from.

Key learnings

In light of the upcoming roll-out of the National Tutoring Programme, the evaluation of ASCENTS offers key learnings for schools, mentors, and tutoring intervention developers.

Supporting schools and school leads

- Information about the intervention design and its rationale will help school leads to fully understand its aims and implement it as intended. For instance, we found that school leads might not agree that mentees should select the session topics (despite mentees reporting they enjoyed this aspect). In addition, they might not understand why mentors should not deliver practical demonstrations and expect mentors to have better knowledge of the GCSE science syllabus.
- Teachers' time for administering and supporting the tutoring sessions needs to be accounted for and communicated at the outset.
- Developers should consider and specify resources required to best facilitate the tutoring sessions. In some schools the room used for ASCENTS sessions was not suitable. Mentees suggested a

suitable room is required for sessions, one large enough to accommodate all mentees and mentors comfortably, and that other pupils not taking part in the intervention should not be in the room for activities such as detention.

- Schools may benefit from guidance on how to prioritise tutoring sessions alongside other activities including detentions and revision sessions. Additionally, schools may benefit from guidance on how to manage mentee and mentor absences to ensure consistency across schools.
- Providing regular communication to schools on pupil progress may be beneficial. To enhance pupils' progress, school leads were keen to be kept informed about the topics covered during tutoring sessions and progress made.

Supporting mentors

- Within the ASCENTS recruitment phase, the mentor eligibility was widened to include those with international qualifications.
- To further enhance the training, mentors suggested signposting them to teaching resources, guidance on how to structure sessions to engage shy or unmotivated mentees, and manualised information on the GSCE science syllabus and exams. It was also suggested that the training should take place closer to the start of the programme.
- In addition to the initial training, mentors may benefit from formal ongoing support, for example, support sessions to troubleshoot issues and concerns with engaging their mentees and share best practice.
- To avoid mentors deviating from the intended delivery model, it is important that training and ongoing support clarify what sessions should and should not involve. For instance, in ASCENTS, practical science demonstrations are not allowed.
- Guidance for how long mentors are expected to spend on preparing, follow-up, and travelling to sessions is important. In ASCENTS, this time was variable across mentors and settings. In a small number of cases it exceeded the two-hour allocation.

Limitations and lessons learned

- At recruitment, pupils and parents did not always understand the possibility of being allocated to a control group and that this meant they would not receive the intervention. Some were disappointed about not receiving mentoring. This will need to be better communicated in the recruitment material for pupils and parents.
- There was limited attrition of schools and pupils during the study. Where this happened, it was due to schools being too distant from the university and limited public transport, which meant that no mentors could be allocated or there were difficulties for mentees' attendance. The distance and travel time between schools and the university will need to be considered when recruiting schools for the programme.
- The IPE data collection tools worked well and can be replicated in future studies. On reflection, pupils allocated to the control group could have also been surveyed pre and post intervention to make comparisons between them and pupils in the treatment group. In addition, we advise conducting observations of ASCENTS sessions and focus groups with mentees (as intended by this evaluation) as well as interviews with mentors. It is also advisable to develop a pro-forma for schools to record mentor and mentee attendance at sessions and a streamlined process for university partners to share this with the evaluators. Due to mentor and mentee attendance being recorded differently across universities, the IPE uses self-reported survey data, which can question the reliability of this compliance measure.
- The IPE findings are generalisable across schools, mentees, and mentors who took part in the intervention. However, the impact evaluation was cancelled due to COVID-19 and we were therefore

unable to assess the impact of ASCENTS. This means there are limits to the extent to which we can attribute the perceived outcomes to the intervention.

Future research and publications

NatCen has been commissioned by the EEF to conduct follow-up research with the ASCENTS mentors in 2021–2025, to assess the impact of the programme on the likelihood of mentors entering the teaching profession. The findings will be published as an addendum to this report.

References

Archer, L., DeWitt, J., Osborne, J., Dillon, J., Willis, B. and Wong, B. (2010) '"Doing" Science Versus "Being" a Scientist: Examining 10/11-Year-Old Schoolchildren's Constructions of Science Through the Lens of Identity', *Science Education*, 94 (4), pp. 617–639.

Bernstein, L., Dun Rappaport, C., Olsho, L., Hunt, D. and Levin, M. (2009) 'Impact Evaluation of the U.S. Department of Education's Student Mentoring Program' (NCEE 2009-4047), Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Buckley, S. and Zamora, J. (2007) 'Effects of Participation in a Cross Year Peer Tutoring Programme in Clinical Examination Skills on Volunteer Tutors' Skills and Attitudes Towards Teachers and Teaching', *BMC Medical Education*, 2007 7 (20). https://doi.org/10.1186/1472-6920-7-20

Burns, M. K., Codding, R. S., Boice, C. H. and Lukito, G. (2010) 'Meta-Analysis of Acquisition and Fluency Math Interventions with Instructional and Frustration Level Skills: Evidence for a Skill-by-Treatment Interaction', *School Psychology Review*, 39, pp. 69–83.

Children's Commissioner (2020) Briefing: 'Tackling the Disadvantage Gap During the Covid-19 Crisis', London: CCO. https://www.childrenscommissioner.gov.uk/wp-content/uploads/2020/04/cco-tackling-the-disadvantage-gap-during-the-covid-19-crisis.pdf

Demack, S., McCaig, C., Wolstenholme, C., Stevens, A. and Fumagalli, L. (2016) 'ThinkForward: Evaluation Report and Executive Summary', London: Education Endowment Foundation. https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Reports/EEF_Project_Report_ThinkForward.pdf

Department for Education (in press) 'Language Horizons'. https://mflmentoring.co.uk/language-horizons/

Dietrichson, J., Bøg, M., Filges, T. and Klint Jørgensen, A. M. (2017) 'Academic Interventions for Elementary and Middle School Students with Low Socioeconomic Status: A Systematic Review and Meta-Analysis', *Review of Educational Research*, 87 (2), pp. 243–282.

DuBois, D. L. and Rhodes, J. E. (2006) Introduction to the special issue: 'Youth Mentoring: Bridging Science with Practice', *Journal of Community Psychology*, 34 (6), pp. 647–655.

DuBois, D. L., Holloway, B. E., Valentine, J. C. and Cooper, H. (2002) 'Effectiveness of Mentoring Programs for Youth: A Meta-Analytic Review', *American Journal of Community Psychology*, 30, pp. 157–198.

EEF (2018) 'Peer Tutoring: Teaching and Learning Toolkit', London: Education Endowment Foundation. https://educationendowmentfoundation.org.uk/evidence-summaries/teaching-learning-toolkit/peer-tutoring/

EEF (2020a) 'Impact of School Closures on the Attainment Gap: Rapid Evidence Assessment', London: Education Endowment Foundation. https://educationendowmentfoundation.org.uk/public/files/EEF_(2020)_-_Impact_of_School_Closures_on_the_Attainment_Gap.pdf

EEF (2020b) 'Teaching and Learning Toolkit', London: Education Endowment Foundation. https://educationendowmentfoundation.org.uk/evidence-summaries/teaching-learning-toolkit/

Ginsburg-Block, M. D., Rohrbeck, C. A. and Fantuzzo, J. W. (2006) 'A Meta-Analytic Review of Social, Self-Concept, and Behavioral Outcomes of Peer-Assisted Learning', *Journal of Educational Psychology*, 98, pp. 732–749.

Health Foundation (2020) 'Emerging Findings on the Impact of COVID-19 on Black and Minority Ethnic People' (20 May 2020): https://www.health.org.uk/news-and-comment/charts-and-infographics/emerging-findings-on-the-impact-of-covid-19-on-black-and-min

Hutchinson, J., Reader, M. and Akhal, A. (2020) 'Education in England: Annual Report', London: EPI. https://epi.org.uk/publications-and-research/education-in-england-annual-report-2020/

IFS (2020) 'Learning During the Lockdown: Real-Time Data on Children's Experiences During Home Learning', London: Institute for Fiscal Studies.

Jerrim, J. (2017) 'Extra Time: Private Tuition and Out-of-School Study, New International Evidence', London: IoE and Sutton Trust. https://www.suttontrust.com/wp-content/uploads/2017/09/Extra-time-report_FINAL.pdf

Jun, S. W., Ramirez, G. and Cumming, A. (2010) 'Tutoring Adolescents in Literacy: A Meta-Analysis', *McGill Journal of Education/Revue des Sciences de L'Education de McGill*, 45, pp. 219–238.

Khalid, H., Shahid, S., Punjabi, N. and Sahdev, N. (2018) 'An Integrated 2-Year Clinical Skills Peer Tutoring Scheme in a UK-Based Medical School: Perceptions of Tutees and Peer Tutors', *Advances in Medical Education and Practice*, 9, pp. 423–432. DOI: 10.2147/AMEP.S159502

Kidron, Y. and Lindsay, J. (2014). 'The Effects of Increased Learning Time on Student Academic and Nonacademic Outcomes: Findings from a Meta-Analytic Review', Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Appalachia.

Kunsch, C. A., Jitendra, A. K. and Sood, S. (2007) 'The Effects of Peer-Mediated Instruction in Mathematics for Students with Learning Problems: A Research Synthesis', *Learning Disabilities Research and Practice*, 22, pp. 1–12.

Lee, J. (2013) 'The Shadow Cost of Education: How Does Private Tutoring Affect Students' Well-Being?', unpublished thesis, Barcelona: Universitat Autonoma.

Leung, K. C. (2015) 'Preliminary Empirical Model of Crucial Determinants of Best Practice for Peer Tutoring on Academic Achievement', *Journal of Educational Psychology*, 107, pp. 558–579.

Liew, S. C., Sow, C. F., Sidhu, J. and Devi Nadarajah, V. (2015) 'The Near-Peer Tutoring Programme: Embracing the "Doctors-to-Teach" Philosophy—A Comparison of the Effects of Participation Between the Senior and Junior Near-Peer Tutors', *Medical Education Online*, 20 (1), DOI: 10.3402/meo.v20.27959

Lloyd, C., Edovald, T., Kiss, Z., Morris, S., Skipp, A. and Ahmed, H. (2015a) 'Paired Reading: Evaluation Report and Executive Summary', London: Education Endowment Foundation. https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Reports/Peer_Tutoring_in_Secondary_Schools.pdf

Lloyd, C., Edovald, T., Morris, S., Kiss, Z., Skipp, A. and Haywood, S. (2015b) 'Durham Shared Maths Project: Evaluation Report and Executive Summary', London: Education Endowment Foundation. https://v1.educationendowmentfoundation.org.uk/uploads/pdf/Shared_Maths_1.pdf

Marshall, L., Bury, J., Wishart, R., Hammelsbeck, R. and Roberts, E. (2021) 'The National Online Tuition Pilot: Pilot Report', London: Education Endowment Foundation. https://educationendowmentfoundation.org.uk/public/files/National_Online_Tuition_Pilot.pdf

McQuillin, S., Smith, B. and Strait, G. (2011) 'Randomized Evaluation of a Single Semester Transitional Mentoring Program for First Year Middle School Students: A Cautionary Result for Brief, Schoolbased Mentoring Programs', *Journal of Community Psychology*, 39 (7), pp. 844–859.

McQuillin, S., Strait, G., Smith, B. and Ingram, A. (2015) 'Brief Instrumental School-Based Mentoring for First- and Second-Year Middle School Students: A Randomized Evaluation', *Journal of Community Psychology*, 43 (7), pp. 885–899.

Nickow, A., Oreopoulos, P. and Quan, V. (2020) 'The Impressive Effects of Tutoring on PreK-12 Learning: A Systematic Review and Meta-Analysis of the Experimental Evidence', EdWorking Paper 20 (267).

NTP (2020) 'FAQs, National Tutoring Programme', https://nationaltutoring.org.uk/faqs

Opper, Isaac M. (2019) 'Does Helping John Help Sue? Evidence of Spillovers in Education', *American Economic Review*, 109 (3), pp. 1080–1115.

Reeve, J., Jang, H., Carrell, D., Jeon, S. and Barch, J. (2004) 'Enhancing Students' Engagement by Increasing Teachers' Autonomy Support', *Motivation and Emotion*, 28, p. 147. https://doi.org/10.1023/B:MOEM000032312.95499.6f

Rodrigues, J., Sengupta, A., Mitchell, A., Kane, C., Kane, C., Maxwell, S., Cameron, H., Ross, M. and Ford, M. (2009) 'The South-East Scotland Foundation Doctor Teaching Programme: Is "Near-Peer" Teaching Feasible, Efficacious and Sustainable on a Regional Scale?', *Medical Teacher*, 31 (2), pp. e51–e57. DOI: 10.1080/01421590802520915

Rohrbeck, C. A., Ginsburg-Block, M. D., Fantuzzo, J. W. and Miller, T. R. (2003) 'Peer-Assisted Learning Interventions with Elementary School Students: A Meta-Analytic Review', *Journal of Educational Psychology*, 95, pp. 240–257.

Russell, L. (2007) 'Mentoring is Not for You!: Mentee Voices on Managing Their Mentoring Experience', *Improving Schools*, 10 (1), pp. 41–52.

Schools Week (2020) 'Coronavirus: Attainment Gap Could Widen by 75%, DfE Official Warns' (16 May 2020).

Sharp, C., Sims, D. and Rutt, S. (2020) 'The Challenges Facing Schools and Pupils in September 2020', London: NfER.

Sharpe, R., Abrahams, I. and Fotou, N. (2018) 'Does Paired Mentoring Work? A Study of the Effectiveness and Affective Value of Academically Asymmetrical Peer Mentoring in Supporting Disadvantaged Students in School Science', *Research in Science and Technological Education*, 36, pp. 205–225.

Song, Y., Loewenstein, G. and Shi, Y. (2018) 'Heterogeneous Effects of Peer Tutoring: Evidence from Rural Chinese Middle Schools', *Research in Economics*, 72 (1), pp. 33–48.

Sutton Trust (2019) 'Private Tuition Polling 2019', London: Sutton Trust. https://www.suttontrust.com/wp-content/uploads/2019/12/PrivateTuition2019-PollingTables.pdf

Torgerson, C., Bell, K., Coleman, E., Elliott, L., Fairhurst, C., Gascoine, L., Hewitt, C. and Torgerson, D. (2018) 'Tutor Trust: Affordable Primary Tuition, Evaluation Report', London: Education Endowment Foundation. https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Reports/Tutor_Trust.pdf

Wood, S. and Mayo-Wilson, E. (2012) 'School-Based Mentoring for Adolescents: A Systematic Review and Meta-Analysis', *Research on Social Work Practice*. http://dx.doi.org/10. 1177/1049731511430836

Appendix A: Mentor Memorandum of Understanding

Memorandum of Understanding for Mentors

Agreement to participate in the evaluation of

ASCENTS 121 Support for Science

Thank you for your interest in the evaluation of ASCENTS 121 Support for Science delivered by the University of Lincoln in collaboration with University of Leeds, University of Liverpool, UCL Institute of Education, and University of York. The Education Endowment Foundation (EEF) have funded the National Centre for Social Research (NatCen) to carry out an independent evaluation of the programme.

The purpose of this agreement is to outline the aims of the evaluation and the responsibilities of all parties involved. If you have any queries, please contact Berenice Scandone at **ASCENTS@natcen.ac.uk**.

If you are happy to take part, please complete the sign-up page at the bottom of this MOU and send a scanned copy to ASCENTS@natcen.ac.uk**.**

1. Aims of the Evaluation

ASCENTS 121 Support for Science pairs university STEM students with disadvantaged year 11 pupils. University mentors provide 23 weeks of one-to-one hour-long sessions in science subjects and 6 hours of revision in the weeks leading up to the year 11 students' GCSE exams. Mentors receive training by the University of Leeds and ongoing support by a trained university programme manager.

The aims of this evaluation are to:

- assess the impact of ASCENTS on pupils;
- understand factors that impact successful implementation of ASCENTS; and
- assess whether and how best ASCENTS can be delivered more widely.

By participating in this research, you will make an important contribution to understanding how one-to-one support and paired learning can impact student achievement and progression in STEM subjects.

2. Evaluation Activities

Evaluation activities will mainly take place from May 2019 to June 2020. The last mentor survey will be administered one year after your graduation and data on progression into teaching will be collected in 2024. The evaluation activities for mentors will involve:

- **Observations of mentor training sessions:** to better understand the support and information provided to mentors, NatCen researchers will observe 1-2 full-day mentor training sessions across the five partner universities.
- **Observations of mentoring sessions:** NatCen researchers will observe 1-2 mentoring sessions per university from January to April 2020 to understand how ASCENTS is delivered.
- **Online survey with mentors:** mentors will complete an online survey before and after the programme to capture contextual information, motivations to take part in the programme and career aspirations. The initial survey will be administered during mentor training in May/June 2019. The final survey will be conducted one year after mentor graduation.
- **Collection of data on progression into teaching:** to explore long-term career outcomes for mentors, we will collect data from the Initial Teacher Training Performance Profiles and the School Workforce Census, and link this with data from the online surveys. ITTPP and SWC data from 2023 will be collected in 2024.

3. Mentor responsibilities

By agreeing to take part in the trial, you commit to:

- attending the mentor training session provided by University of Leeds;
- providing one-to-one support to the mentee(s) assigned to you as per university guidance;
- arriving early for the first mentoring session, to receive any procedural training or guidance provided by the key contact at the school;
- monitoring mentee attendance; and
- taking part in the evaluation activities highlighted in section 2 of this document.

4. University responsibilities

University of Lincoln and partner universities commit to:

- selecting Year 2 or 3 undergraduate students to take part as mentors in the programme;
- providing information about the programme to students during recruitment;
- providing ASCENTS training and support to all participating university mentors;
- providing logistical assistance to mentors (e.g. if mentors require advice for travel arrangements or are unable to attend an ASCENTS session);
- being a point of contact for mentor questions about ASCENTS;
- monitoring attendance of mentors at the university training sessions;
- monitoring attendance of mentors at the ASCENTS sessions; and

- collecting data on pupil attendance to ASCENTS sessions from mentors and sharing this with NatCen using a secure FTP connection.

5. NatCen Responsibilities

The research team at NatCen commit to:

- providing information about each stage of the evaluation in a timely way;
- collecting and analysing information from the evaluation to provide an assessment of the impact of ASCENTS on pupils and mentors and an understanding of how the programme works in practice;
- writing a report with findings from the evaluation and archive the data;
- sharing the final anonymised quantitative dataset from the impact evaluation with University of Lincoln and collaborating universities;
- storing participant information securely;
- ensuring the confidentiality and anonymity of all findings; and
- being a point of contact for any questions about the evaluation.

6. Use of Data and GDPR

- Pupil data will be matched with the National Pupil Database (NPD) to gather data on pupils' attainment in SAT and GCSE (Science, English and Maths), and on their progression to AS and A levels, to assess the impact of the programme.
- Attendance data collected by mentors will be used to investigate the impact of the programme according to how many sessions pupils attended.
- Mentor data will be matched with the Initial Teacher Training Performance Profiles and the School Workforce Census to gather data on career outcomes. This will be linked with data from the mentor survey to assess the long-term influence of participation to ASCENTS on mentor progression into teaching.
- This evaluation data will be shared with EEF and FFT (EEF's data processors for the EEF data archive), and, in an anonymised form, with other research teams and potentially the UK Data Archive. Further matching to NPD data may take place during subsequent research. Once archived, the data will be deleted by NatCen.
- All data will be treated with the strictest confidence – No individual mentor or mentee will be identified in any report arising from the research.
- NatCen is the data controller for this evaluation. The legal basis for this research is "legitimate interest". More information can be found in the privacy notice, appended to this document.

ASCENTS 121 Support for Science Memorandum of Understanding

- **Sign-up page**

Please complete the form below and send a scanned copy to Berenice Scandone at **ASCENTS@natcen.ac.uk**.

I agree with the conditions stated in this Memorandum of Understanding and commit to the evaluation of ASCENTS 121 Support for Science.

Name:

University:

Year of study:

Subject:

Contact phone number:

Email:

Signature: Date:

If you have any queries about the evaluation or this Memorandum of Understanding, please contact **ASCENTS@natcen.ac.uk.**

Appendix B: School Memorandum of Understanding

Memorandum of Understanding for Schools

Agreement to participate in the evaluation of

ASCENTS 121 Support for Science

Thank you for your interest in the evaluation of ASCENTS 121 Support for Science, delivered by the University of Lincoln in collaboration with University of Leeds, University of Liverpool, UCL Institute of Education, and University of York. The Education Endowment Foundation (EEF) have funded the National Centre for Social Research (NatCen) to carry out an independent evaluation of the programme.

The purpose of this agreement is to outline the aims of the evaluation and the responsibilities of all parties involved. If you have any queries, please contact Berenice Scandone at **ASCENTS@natcen.ac.uk**.

If you are happy for your school to take part, please complete the sign-up page at the back of this MOU and send a scanned copy to ASCENTS@natcen.ac.uk **by 5th April 2019. We will then be in touch with instructions for the final steps in signing your school up to the evaluation, including identifying eligible pupils.**

1. Aims of the Evaluation

ASCENTS 121 Support for Science pairs university STEM students with disadvantaged year 11 pupils. University mentors provide 23 weeks of one-to-one hour-long sessions in science subjects and a 6-hour revision session in the weeks leading up to the year 11 students' GCSE exams. Mentors receive training by the University of Lincoln and ongoing support by a trained university programme manager.

The aims of this evaluation are to:

- assess the impact of ASCENTS on pupils;
- understand factors that impact successful implementation of ASCENTS; and
- assess whether and how best ASCENTS can be delivered more widely.

By participating in this research, you will make an important contribution to understanding how one-to-one support and paired learning can impact student achievement and progression in STEM subjects.

2. Randomisation

All schools taking part in ASCENTS 121 Support for Science will participate in the evaluation. The research design is a randomised controlled trial, involving approximately 770 pupils from secondary schools across England. Schools will identify pupils who are eligible for the programme and invite them and their parents to express interest in the programme. Pupils who wish to take part will be randomly assigned (by NatCen) to Group A (the treatment group) or Group B (the control group). Pupils who are randomly assigned to Group A will be allocated a mentor and receive ASCENTS 121 Support for Science. Pupils who are randomly assigned to Group B will not receive the intervention and will take part in school activities as usual. Therefore, half of the identified students in every school will receive the programme.

Random assignment of pupils to control and treatment groups is essential to the evaluation as it is the best way of identifying what effect the programme has on science outcomes. It allows the research team to compare the progress made by pupils in each of the two groups. It is important that schools and pupils understand and consent to the random allocation process.

3. Evaluation Activities

Evaluation activities involving schools will run from May 2019 to June 2020. The evaluation activities for schools are listed below:

3.1. Evaluation activities involving pupils

Schools will be required to coordinate the following evaluation tasks involving pupils:

- **Pupil surveys:** The evaluation will involve two short pupil surveys – one at the start of the programme and one at the end. The survey will capture pupils' motivation and attitudes to science, contextual information on science related extracurricular activities, and experiences of ASCENTS. We will ask schools to arrange a time for pupils to complete these paper-based surveys – probably in the same slot as when ASCENTS sessions are delivered – and to return them to us by courier (arranged by NatCen).
- **Observation of mentoring sessions:** NatCen research staff will visit some schools to observe ASCENTS sessions. If your school is invited to take part in an observation visit, the main school contact will be responsible for coordinating the details of this with NatCen research staff.
- **Pupil discussion groups:** NatCen research staff will conduct focus group discussions with pupils toward the end of the programme to understand pupils' views and experiences of the programme. If invited to take part, schools will be responsible for coordinating a time and venue (within the school premises) for the discussion groups and inviting pupils to take part.

3.2. Evaluation activities involving school staff

School staff will be asked to complete the following evaluation tasks:

- **School pre-intervention survey:** The key contact for participating schools will complete an online survey pre-intervention, providing contextual information on the school, what business as usual looks like in the school, and arrangements to facilitate ASCENTS sessions.
- **Interviews with science teachers:** Interviews with science teachers will be conducted to understand whether the intervention changes teaching practices. Interviews will be

conducted face-to-face if science teachers are available during site visits or by telephone otherwise.

- **School post-intervention survey:** The key contact in schools will be asked to complete a short online questionnaire at the end of the intervention. The survey will gather information on any changes to contextual information provided in the pre-intervention survey, business as usual, and views on facilitating ASCENTS.

4. School responsibilities

By agreeing to take part in the evaluation, you are committing to completing the following tasks:

- **Schools provide key contact details:** School will appoint a key contact and provide their contact details to NatCen. The school contact will play a key role in delivering the intervention and supporting the NatCen research team. They will be the main point of contact for NatCen when coordinating evaluation tasks.
- **Identify eligible pupils:** Schools will identify pupils that are eligible to take part in the programme and the evaluation. Eligible pupils will be in Year 11 in 2019/20, receiving pupil premium, predicted a grade 3 to 5 in GCSE science and studying combined double award science (foundation or higher).
- **Provide information about programme and evaluation to eligible pupils and parents:** NatCen will provide information letters which will include details of the programme and evaluation activities, including the randomisation process and its implications. Parents will have two weeks to give permission for their child to take part in the programme and the evaluation. This will be specified in the letter to parents.
- **Collect names of pupils with parental permission and share data:** Schools will collect details of pupils with parental permission and securely share this information with NatCen research staff.
- **Take part in evaluation activities:** Schools agree to carry out the evaluation activities involving pupils and the school as detailed under section 2.
- **Facilitate mentoring sessions:** Mentoring sessions will usually take place with all students in one room. A teacher must be present to supervise.
- **Provide mentors with subject specific support:** The science teacher will provide subject specific support to mentors if required (e.g. if pupils asks a subject related question to which the mentor does not know the answer; providing information on what has been covered so far in classroom).

5. University responsibilities

University of Lincoln and partner universities commit to:

- recruiting schools to take part in the programme;
- providing information about the programme to all schools during recruitment;
- selecting Year 2 or 3 undergraduate students to take part as mentors in the intervention;
- providing ASCENTS training and support to all participating university mentors;

- being a point of contact for schools' questions about ASCENTS;
- monitoring attendance of mentors at the university training sessions;
- monitoring attendance of mentors at ASCENTS sessions; and
- collecting data on pupil attendance to ASCENTS sessions from mentors and sharing this with NatCen using a secure FTP connection.

6. NatCen Responsibilities

The research team at NatCen commit to:

- providing information about each stage of the evaluation in a timely way;
- collecting and analysing information from the evaluation to provide an assessment of the impact of ASCENTS on pupils and mentors and an understanding of how the programme works in practice;
- writing a report with findings from the evaluation and archiving the data;
- storing information about your school and pupils securely;
- ensuring the confidentiality and anonymity of all findings; and
- being a point of contact for schools' questions about the evaluation.

7. Use of Data and GDPR

- Pupil data will be matched with the National Pupil Database (NPD) to gather data on pupils' attainment in SAT and GCSE (Science, English and Maths), and on their progression to AS and A levels, to assess the impact of the programme.
- Attendance data collected by mentors will be used to investigate the impact of the programme according to how many sessions pupils attended.
- This evaluation data will be shared with EEF and FFT (EEF's data processors for the EEF data archive), and, in an anonymised form, with other research teams and potentially the UK Data Archive. Further matching to NPD data may take place during subsequent research. Once archived, the data will be deleted by NatCen.
- All data will be treated with the strictest confidence – No individual school or pupil will be identified in any report arising from the research.
- NatCen is the data controller for this evaluation. The legal basis for this research is "legitimate interest". More information can be found in the privacy notice, appended to this document.

ASCENTS 121 Support for Science Memorandum of Understanding –

Sign-up page

Please complete Part 1, then Part 2 **or** Part 3 and send a scanned copy to Berenice Scandone at **ASCENTS@natcen.ac.uk** by 5th April 2019.

Please complete Part 1, then Part 2 **or** 3 as appropriate.

Part 1

School Name: _____

School Postcode: _____

Part 2

My school **will** take part in this evaluation and agrees to the conditions stated in this Memorandum of Understanding (MoU).

Head teacher name: _____

Head teacher signature: _____

The main contact for the pilot will be:

Name: _____

Job title: _____

Contact phone number: _____

Email: _____

Part 3

My school is unable to take part in this evaluation.

Head teacher name: _____

Head teacher signature: _____

If you have any queries about the evaluation or this MoU, please contact **ASCENTS@natcen.ac.uk**

Appendix C: Pupil and Parent Information Letters

NatCen
Social Research that works for society

Education Endowment Foundation

University of Lincoln

Dear pupil,

Your school is taking part in a trial of ASCENTS, a mentoring programme to improve pupils' performance in GCSE science.

We are looking for volunteers to test this programme.

If you would like to participate, your parent/legal guardian will need to give permission for you to be enrolled. They can do this by signing the permission slip provided in the information letter to parents/carers. Please hand the signed permission slip to your teacher by [date].

Berenice Scandone
Senior Researcher
NatCen Social Research

What is ASCENTS?

ASCENTS aims to help you prepare for your GCSE science exams.

- From September 2019, mentors from <delivery university> will provide 23 weekly one-to-one one-hour sessions at your school.
- Mentors can help you with any areas of science you find difficult in preparation for your GCSE science exams.
- At the end of the programme, you will have the chance to attend a revision day at a leading university.

What research are we doing?

If you have permission to take part, you will be entered in a lottery. Half of those entered will have the chance to take part in ASCENTS.

The research activities that might affect you are:

- **Analysis of your GCSE results and data on where you go next** from the National Pupil Database.
- **Two brief surveys** about your views on science - one at the start and one at the end of the programme.
- **School visits** by NatCen researchers to observe an ASCENTS session.
- **Group discussions** at the end of the programme to discuss your experience.

NatCen
Social Research that works for society

Education Endowment Foundation

University of Lincoln

Dear parent/carer,

Your child's school is taking part in a trial of ASCENTS, a mentoring programme designed to improve pupils' performance in GCSE science.

If you are happy for your child to take part in the programme, please complete and return the attached form to your child's school by [date]. If your child will be receiving the ASCENTS sessions, your school will let you know in September.

Berenice Scandone
Senior Researcher
NatCen Social Research

What is ASCENTS?

- A programme developed by the University of Lincoln, that places university science undergraduates (mentors) in schools.
- ASCENTS aims to help Year 11 students prepare for their GCSE science exams.
- Mentors from <delivery university> provide weekly one-to-one sessions for 23 weeks from September 2019 onwards.
- These one-hour mentoring sessions will take place at your child's school (you will be informed of when in the day in September) and will be supervised by a teacher.
- At the end of the programme, pupils have the chance to attend a revision day at a leading university.

Why are we doing this research?

Two years ago, a small pilot at the University of Lincoln found that the ASCENTS programme had a positive impact on pupils' science GCSE results. The Education Endowment Foundation and Wellcome Trust have now funded a larger trial to see if ASCENTS can be successfully rolled out on a much larger scale by five universities: Leeds, Lincoln, Liverpool, UCL and York.

What research are we doing?

Pupils with permission to take part will be entered into a lottery and half will be randomly chosen to take part in ASCENTS. The other half will continue with usual science teaching and exam preparation. The research conducted by NatCen will compare both groups' achievement at GCSE and A-Level to understand the impact of the programme.

The information that we collect will be used for research purposes only. We will not use the names of schools, staff members or pupils when reporting our findings. More information can be found in the attached privacy notice.

How can I get more information?

A separate letter containing more information about the programme and how your child's data will be processed has already been sent to your child. You might want to read it too.

For any further information about ASCENTS, please contact your school's lead XXXXXX

For more information about the research, please visit www.natcen.ac.uk/ASCENTS. Alternatively, feel free to contact Tom Bristow at NatCen at ASCENTS@natcen.ac.uk or by calling 0808 169 9627.

Appendix D: Mentor pre- and post-intervention surveys

ASCENTS mentor survey, wave one

Immediately after training

Questions are documented as follows:

{Question routing - who is asked the question}

Question Name

Question text

: Question response options

(Variable label)

Textfills from sample include:

TEXTFILL:

Triggering outcomes:

Timestamps:

TESTING

Please check:

1. That all questions are compulsory (with the exception of two, “anything else to add” questions, highlighted below). Please test this by trying to skip every question in the survey before you answer it
2. **That all questions are present**
3. Question wording should match the survey script
4. Answer options should match the survey script
5. Questions should follow the same order as the survey script
6. Spelling mistakes and typos
7. Formatting
8. Logic – applies only to questions 13 – 16

Rule: should only be asked 14-16 if you answer “I have done this” to Q13. Please check that you are then asked all three of 14-16, and sent to Q17 if select “I have not done this”

9. Finally, do highlight if, on seeing questions in the flesh, you think they do not make sense or will draw invalid responses

Please highlight any errors with a comment on the relevant question in this document.

I. Introduction

{ASK ALL}

Intro

Evaluation of ASCENTS 121 Support for Science

This survey was created by NatCen Social Research for the evaluation of the ASCENTS mentoring programme, and will help us find ways to improve the programme. Please answer all questions as honestly as you can – we want to know your genuine experiences and feelings. It takes about ten minutes.

Please do the survey only after you have completed your second day of ASCENTS training.

If you have any questions about the evaluation of ASCENTS, please visit our website http://natcen.ac.uk/taking-part/studies-in-field/evaluation-of-ascents-121-support-for-science/ **or email ASCENTS@natcen.ac.uk.**

To submit responses for this survey, you will need to answer all questions and click "submit" at the end. If you stop the survey, you will need to complete it again from the start.

Thank you for taking the time to complete this survey.

Stop page:
This survey has been stopped. You will need to come back and answer all questions to complete the survey

II. Characteristics

FName (VARLAB: first name)
1. What is your first name?
<Open text box>

SName (VARLAB: surname)
2. What is your surname?
<Open text box>

DoB (VARLAB: DoB)
3. What is your date of birth?
Please write in the following format: *day/month/year. E.G. 25/12/2000*
<Open text box>

UniMail (VARLAB: university email)
4. We may want to get in touch again at the end of the ASCENTS programme to ask for your feedback. Please provide your university email address so we can do this:
<Open text box>

PerMail (VARLAB: Personal email)
5. After you graduate we may want to get in touch to ask how ASCENTS has affected your career plans. Please provide your personal email address so we can do this:
<Open text box>

UniAttnd (VARLAB: University attended)
6. Which of the following universities do you attend?
University of Lincoln

University of Liverpool
University of York
University College London Institute of Education
University of Leeds

CrsYrs (VARLAB: course length)

7. How many years does your course last?

Three years
Four years
Five years
Other (specify)

BScMSc (VARLAB: BSc or MSc)

8. At the end of your course, will you receive a BSc or MSc qualification?

BSc
MSc
Other (specify)

CrntYr (VARLAB: current course year)

9. What year of your course are you currently in?

First
Second
Third
Fourth
Fifth
Other

Gender (VARLAB: gender)

10. What is your gender?

Male
Female
Other
Prefer not to answer

EthnGrp (VARLAB: ethnic group)

11. What is your ethnic group?

White British
White Other
Mixed or multiple ethnic groups
Asian/Asian British
Black/African/Caribbean/Black British
Other ethnic group
Prefer not to answer

Subject (VARLAB: subject studied)

12. . What is your subject of study? If you are a dual subject student, please specify your two subjects in the "other" textbox below.

Aerospace engineering
Astronomy
Biochemistry
Biology
Chemical engineering
Chemistry
Civil engineering
Computer science

Electrical engineering
Mathematics
Mechanical engineering
Neuroscience
Physics
Psychology
Statistics
Other (specify)

III. Prior experience

PrvWrk (VARLAB: if done previous work with young people)

13. Before ASCENTS, have you had any other experience of working or volunteering with children or young people?

I have done this
I have not done this

Those who choose "I have done this" at 16

PrvTtr (VARLAB: if tutored)

How often, if it all, have you done the following?

14. Academic tutoring / mentoring

Once
A few times
Regularly – as part of a paid job
Regularly – as part of unpaid voluntary work
Never

Those who choose "I have done this" at 16

PrvTch (VARLAB: if worked as a teaching assistant)

How often, if at all, have you done the following?

15. Working as a teaching assistant in a school

Once
A few times
Regularly – as part of a paid job
Regularly – as part of unpaid voluntary work
Never

Those who choose "I have done this" at 16

PrvOtWrk (VARLAB: if done any other work with young people)

How often, if at all, have you done the following?

16. Other work with young people (e.g. working with a youth organisation, helping at a school with extracurricular activities, School Experience Programme, nannying, babysitting)

Once
A few times
Regularly – as part of a paid job
Regularly – as part of unpaid voluntary work
Never

IV. Career aspirations

Thinking about your plans for after you graduate, how likely are you to pursue each of the following career options? On a scale of 0 to 10, where 0 is extremely unlikely, 5 is neither likely nor unlikely and 10 is extremely likely.

TchSSch (VARLAB: how likely to become a secondary school teacher)

17. Secondary school teaching

0 – Extremely unlikely
1
2
3
4
5 – Neither likely nor unlikely
6
7
8
9
10 – Extremely likely
Don't know

TchFE (VARLAB: how likely to become a further education teacher)

18. Further education (e.g. college) teaching

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

TchPSch (VARLAB: how likely to become a primary school teacher)

19. Primary school teaching

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

TchUni (VARLAB: how likely to work in a university)

20. University teaching, lecturing or research

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

WkPubSec (VARLAB: how likely to work in the public sector)

21. Public sector not in education, such as the civil service, NHS or local government

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

WkPrvSec (VARLAB: how likely to work in private sector)

22. Private sector / industry

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely

Don't know

Thinking about your plans for after you graduate, how likely are you to pursue each of the following options for further education or training? On a scale of 0 to 10, where 0 is extremely unlikely, 5 is neither likely nor unlikely and 10 is extremely likely.

FtrStud (VARLAB: how likely to study further in subject)

23. Further academic study in your subject area

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

StudTch (VARLAB: how likely to train in teaching)

24. A postgraduate qualification in education or teaching

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

V. Motivations to take part in ASCENTS

Thinking about your reasons for doing ASCENTS, how important were each of the following to you when deciding to do the programme? On a scale of 0 to 10 where 0 is not important to you at all, 5 is somewhat important to you and 10 is extremely important to you.

CrrTch (VARLAB: importance of ASCENTS for future career in teaching)

25. I thought ASCENTS would strengthen my CV and help me get a job after university

0 – Not important to me at all
1
2
3
4
5 – Somewhat important to me
6
7
8
9
10 – Extremely important to me

SptYPpl (VARLAB: importance of supporting disadvantaged young people)

26. I wanted to mentor and / or support the learning of disadvantaged young people

0 – Not important to me at all
5 – Somewhat important to me
10 – Extremely important to me

LrnYPpl (VARLAB: importance of learning what it's like to work with young people)

27. I wanted to learn what it's like to work with young people

0 – Not important to me at all
5 – Somewhat important to me
10 – Extremely important to me

SptArea (VARLAB: importance of supporting local area)

28. I wanted to do something to support the local area
0 – Not important to me at all
5 – Somewhat important to me
10 – Extremely important to me

HlpSTEM (VARLAB: importance helping young people with STEM)
29. I thought it was important to help young people do well in STEM
0 – Not important to me at all
5 – Somewhat important to me
10 – Extremely important to me

ErnMny (VARLAB: importance of earning money)
30. I wanted to earn some money while I'm studying
0 – Not important to me at all
5 – Somewhat important to me
10 – Extremely important to me

VI. Engagement

TimePrep (VARLAB: time spent preparing for ASCENTS)
31. Now that you have had the ASCENTS training, do you think you will need to spend any time preparing for each one-hour mentoring session? If so, approximately how much time per session?
I don't think I will need to spend any time preparing
Less than one hour
Between 1 and 2 hours
Between 2 and 3 hours
More than three hours
Don't know

TimeAft (VARLAB: time spent on follow up work for ASCENTS)
32. Do you think you will need to spend any time on follow up work after each one-hour mentoring session? If so, approximately how much time per session?
I don't think I will need to spend any time doing follow up work
Less than one hour
Between 1 and 2 hours
Between 2 and 3 hours
More than three hours
Don't know

EsyPrp (VARLAB: ease or difficulty of finding time for ASCENTS)
33. If you think you will need to spend time to prepare and/or follow up, how easy or difficult do you think it will it be to find this time?
Very easy
Easy
Neither easy nor difficult
Difficult
Very difficult
Not applicable – I won't need to spend any time on preparation or follow up work
Don't know

StudLess (VARLAB: if will study less to make time for ASCENTS)
Will you have to do any of the following things less in order to make time for ASCENTS?
34. Study
I will have to study less
I will not have to study less

Don't know

SocLess (VARLAB: if will socialise less to make time for ASCENTS)

Will you have to do any of the following things less in order to make time for ASCENTS?

35. Socialise

I will have to socialise less
I will not have to socialise less
Not applicable – I don't socialise
Don't know

WrkLess (VARLAB: if will work less to make time for ASCENTS)

36. Paid work

I will have to do less paid work
I will not have to do less paid work
Not applicable – I don't do paid work
Don't know

VolLess (VARLAB: if will volunteer less to make time for ASCENTS

37. Volunteering

I will have to volunteer less
I will not have to volunteer less
Not applicable – I don't volunteer
Don't know

SprtLess (VARLAB: if will do sports less to make time for ASCENTS)

38. Sports

Will have to do sports less
Will not have to do sports less
Not applicable – I don't do sports
Don't know

ElseLess (VARLAB: if will do anything else less to make time for ASCENTS)

39. If there is anything else you will have to do less in order to make time for ASCENTS please describe it here.

<open text box>

SubKnwl (VARLAB: if ASCENTS will increase tutor knowledge of subject)

40. Do you think that being an ASCENTS mentor will help increase your knowledge of your own subject, or will it make no difference?

I think it will increase my knowledge of my subject a lot
I think it will increase my knowledge of my subject somewhat
I think it will increase my knowledge of my subject a little bit
I don't think it will make a difference
Don't know

VII. Satisfaction with training *

On a scale of 0 to 10, where 0 is highly dissatisfied, 5 is neither satisfied nor dissatisfied and 10 is highly satisfied, how satisfied are you with each of the following aspects of the ASCENTS application process and training:

TrnrDay1 (VARLAB: satisfaction with the trainer on day one)

41. The trainer on day one

0 – Highly dissatisfied
1
2

3
4
5 – Neither satisfied nor dissatisfied
6
7
8
9
10 – Highly satisfied
Don't know

TrnrDay2 (VARLAB: satisfaction with trainer on day two)
42. The mentoring trainer on day two (not the safeguarding trainer)
0 – Highly dissatisfied
5 – Neither satisfied nor dissatisfied
10 – Highly satisfied
Don't know

TrngCont (VARLAB: satisfaction with training content)
43. The training content
0 – Highly dissatisfied
5 – Neither satisfied nor dissatisfied
10 – Highly satisfied
Don't know

TrngSuff (VARLAB: satisfaction with training quantity)
44. Thinking about both training days, do you think the training was too long, too short, or about right?
Too long
Too short
About right
Don't know

Prprd (VARLAB: how well prepared)
45. In conclusion, thinking about how well prepared you feel to be a mentor now you have had the training, how confident do you feel about your mentoring skills?
Very confident
Fairly confident
A little bit confident
Not confident at all
Don't know

AnyElse (VARLAB: anything else to add)
46. Thank you for taking the time to complete this survey. Is there anything else you would like to add?
Open text box

ASCENTS mentor survey, wave 2

Post-intervention

Questions are documented as follows:

{Question routing - who is asked the question}

Question Name

Question text

: Question response options

(Variable label)

Textfills from sample include:

TEXTFILL:

Triggering outcomes:

Timestamps:

Sections

i. Intro
ii. Characteristics
iii. Career expectations
iv. Your experience of ASCENTS
v. Your mentee
vi. Impact of your ASCENTS mentoring

VIII.Introduction

Evaluation of ASCENTS 121 Support for Science

This survey was created by NatCen Social Research for the evaluation of the ASCENTS mentoring programme to help us find ways to improve the programme.

Please answer all questions as honestly as you can – we want to know your genuine views. The survey only takes about ten minutes, and all answers will be reported anonymously.

If you have any questions about the evaluation of ASCENTS, please visit our website: **http://natcen.ac.uk/taking-part/studies-in-field/evaluation-of-ascents-121-support-for science/** or email **ASCENTS@natcen.ac.uk**.

To submit your responses, you will need to answer all questions and click "submit" at the end. If you stop the survey, you will need to complete it again from the start.

Thank you for taking the time to complete this survey.

Stop page:
This survey has been stopped. You will need to come back and answer all questions to complete the survey.

IX.Characteristics

First, a few questions about you. These are to help us with our research and your answers will not be shared outside the NatCen team.

FName (VARLAB: first name)
47. What is your first name?
<Open text box>

SName (VARLAB: surname)
48. What is your surname?
<Open text box>

DoB (VARLAB: DoB)
49. What is your date of birth?
Please write in the following format: *day/month/year; e.g. 25/12/2000*
<Open text box>

PerMail (VARLAB: Personal email)
50. After you graduate we may want to get in touch to ask how ASCENTS has affected your career plans. Please provide your personal email address so we can do this:
<Open text box>

Gender (VARLAB: gender)
51. What is your gender?
Male
Female
Other
Prefer not to answer

EthnGrp (VARLAB: ethnic group)
52. What is your ethnic group?
White British

White Other
Mixed or multiple ethnic groups
Asian/Asian British
Black/African/Caribbean/Black British
Other ethnic group
Prefer not to answer

UniAttnd (VARLAB: University attended)
53. Which of the following universities do / did you attend?
University of Lincoln
University of Liverpool
University of York
University College London
University of Leeds

BScMSc (VARLAB: BSc or MSc)
54. At the end of your university course, will you receive a BSc or MSc qualification?
BSc
MSc
Other (specify)

CrntYr (VARLAB: current course year)
55. What year of your university course are you currently in?
First
Second
Third
Fourth
Fifth
Other (specify)

CrsYrs (VARLAB: course length)
56. How long is your university course?
Three years
Four years
Five years
Other (specify)

Subject (VARLAB: subject studied)
57. What is your subject of study? If you are a dual subject student, please specify your two subjects in the "other" textbox below.
Aerospace engineering
Astronomy
Biochemistry
Biology
Biomedical Science
Chemical engineering
Chemistry
Civil engineering
Computer science
Electrical engineering
Mathematics
Mechanical engineering
Neuroscience
Physics
Psychology

Statistics
Other (specify)

X.Career expectations

The next questions are about your plans for when you have graduated.

Thinking about your plans after graduation, how likely or unlikely are you to pursue each of the following career options? On a scale of 0 to 10, where 0 is extremely unlikely, 5 is neither likely nor unlikely and 10 is extremely likely.

TchPSch (VARLAB: how likely to become a primary school teacher)

58. Primary school teaching

0 – Extremely unlikely
1
2
3
4
5 – Neither likely nor unlikely
6
7
8
9
10 – Extremely likely
Don't know

TchSSch (VARLAB: how likely to become a secondary school teacher)

59. Secondary school teaching

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

TchFE (VARLAB: how likely to become a further education teacher)

60. Further education (e.g. college) teaching

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

TchUni (VARLAB: how likely to work in a university)

61. University teaching, lecturing or research

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

WkPubSec (VARLAB: how likely to work in the public sector)

62. Public sector (not education) such as the civil service, NHS or local government

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

WkPrvSec (VARLAB: how likely to work in private sector)

63. Private sector / industry

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

Thinking about your plans after graduation, how likely or unlikely are you to pursue each of the following options for further education or training? On a scale of 0 to 10, where 0 is extremely unlikely, 5 is neither likely nor unlikely and 10 is extremely likely.

FtrStud (VARLAB: how likely to study further in subject)

64. Further academic study in your subject area

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

StudTch (VARLAB: how likely to train in teaching)

65. A postgraduate qualification in education or teaching

0 – Extremely unlikely
5 – Neither likely nor unlikely
10 – Extremely likely
Don't know

XI. Your experience of ASCENTS

The next questions are about your experience of ASCENTS mentoring.

OverEnjo (VARLAB: whether enjoyed mentoring)

66. To what extent do you agree or disagree with the following statement:

Overall, I enjoyed my mentoring sessions

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
Don’t know

Mentlike (VARLAB: liked about mentoring)

67. What, if anything, did you like about the mentoring sessions?

{Open textbox}

Mentdis (VARLAB: disliked about mentoring)
68. **What, if anything, did you *not* like about the mentoring sessions?**
{Open textbox}

MentCont (VARLAB: content of mentoring sessions)
69. What content did your mentoring sessions cover? Please select all that apply.
Science classwork
Science homework
Learning strategies
Improving confidence
Career options
Other (please specify)

TimePrep (VARLAB: time spent preparing for ASCENTS)
70. Did you spend any time preparing for your mentoring sessions? If so, roughly how much time did you spend preparing before each session?
I didn't spend any time preparing before my mentoring sessions
Less than 30 minutes
Between 30 minutes and 60 minutes
Between 60 minutes and 90 minutes
More than 90 minutes
Don't know

TimeFollow (VARLAB: time spent on follow-up work for ASCENTS)
71. Did you spend any time on follow-up work specifically for ASCENTS after your mentoring sessions? If so, roughly how much time did you spend on follow-up work after each session?
I didn't spend any time on follow-up work after my mentoring sessions
Less than 30 minutes
Between 30 minutes and 60 minutes
Between 60 minutes and 90 minutes
More than 90 minutes
Don't know

IfDrop (VARLAB: if dropped out of ASCENTS)
26. Did you stop ASCENTS mentoring before the end of the programme? Please do not count mentoring sessions that were scheduled to take place after school closures.
Yes, I stopped ASCENTS mentoring before the end of the programme
No, I have not stopped ASCENTS mentoring before the end of the programme

IF IFDROP = YES
WhenDrop (VARLAB: when dropped out of ASCENTS)
27. How many mentoring sessions did you attend before stopping ASCENTS?
[Open text box]

WhenDrop [any value]
WhyDrop (VARLAB: why dropped out of ASCENTS)
28. Did you stop ASCENTS for any of the following reasons? Please select all that apply.
Health problems
Problems with transport to or from mentoring
My mentee didn't show up
The mentoring clashed with lectures or other university work
The mentoring clashed with other paid work
The mentoring clashed with other things I wanted to do
I missed so many mentoring sessions I didn't want to keep going
My home life made it hard for me to attend mentoring

Other (specify)

IF IFDROP = NO
MissSess (VARLAB: whether missed any sessions)
29. How many mentoring sessions did you have to miss? Please do not count mentoring sessions that were scheduled to take place after school closures.
[Numeric open text box; tick box: 'I didn't miss any mentoring sessions']

ANY WHO HAS MISSED ONE OR MORE SESSIONS
WhyMiss (VARLAB: reasons why missed any mentoring sessions)
30. Did you miss any of your ASCENTS sessions for any of the following reasons? Please select all that apply.
I was ill
Problems with transport to or from mentoring
My mentee didn't show up
The mentoring clashed with lectures or other university work
The mentoring clashed with other paid work
The mentoring clashed with other things I wanted to do
I missed so many mentoring sessions I didn't want to keep going
My home life made it hard for me to attend mentoring
Other (specify)

TrainHelp (VARLAB: how helpful was the training received)
31. Now that you have done your ASCENTS mentoring, how helpful or unhelpful did you find the ASCENTS mentor training in preparing you?
Very helpful
Somewhat helpful
Not helpful
Not applicable – I did not attend mentor training
Don't know

TrainWhat (VARLAB: anything that could have made training more helpful)
32. Is there anything that could have made your ASCENTS mentor training more helpful?
[Open box]

ProbRoom (VARLAB: any problems with mentoring room)
33. Were there any problems with the room where you had your mentoring? Please select all that apply.
The mentoring room was too noisy
The mentoring room was too crowded
The mentoring room was too cold
The mentoring room was too hot
Other (please specify)
There were no problems

EasDel (VARLAB: whether found delivery easy or difficult)
34. Overall, how easy or difficult did you find it to deliver ASCENTS mentoring?
Very easy
Fairly easy
Neither easy nor difficult
Fairly difficult
Very difficult
Don't know

EasDelExpl (VARLAB: explain why delivery difficult)
35. Please explain why.

[open text box]

OthCYP (VARLAB: if done previous work with young people)
36. This academic year, have you had any other experience of working or volunteering with children or young people, apart from ASCENTS?
Yes, I have done this
No, I have not done this

XII. Your ASCENTS mentee

The next questions are about your ASCENTS mentee.

OneMent (VARLAB: whether had more than one mentee)
37. Have you had the same mentee for all your ASCENTS sessions, or have you had a different mentee at any point?
I've had the same mentee since I started ASCENTS
I've had different mentees since I started ASCENTS

IF HAD MORE THAN ONE MENTEE
ChngMent (VARLAB: why had to change mentee)
38. Were any of the following a/the reason(s) why you had more than one mentee? Please select all that apply.
My mentee dropped out of ASCENTS
My mentee couldn't come to some of our sessions
I was allocated more than one mentee
I wanted a mentee with a different gender
I didn't get on with my mentee
Other (please specify)

If you had more than one mentee, please think of the mentee you had the most sessions with when you answer the following questions.

MentGndr (VARLAB: whether mentee was same gender)
39. Was your mentee the same gender as you?
Yes, my mentee was the same gender as me
No, my mentee was a different gender from me

IF DIFFERENT GENDER
DiffGndr (VARLAB: how felt about mentee of different gender)
40. How did you feel about having a mentee who was a different gender from you?
I would have preferred a mentee who was the same gender
I liked that my mentee was a different gender from me
It didn't make a difference to me what gender my mentee was
Don't know

IF SAME GENDER
SameGndr (VARLAB: how felt about mentee of same gender)
41. How did you feel about having a mentee who was the same gender as you?
I would have preferred a mentee who was a different gender
I liked that my mentee was the same gender as me
It didn't make a difference to me what gender my mentee was
Don't know

To what extent to you agree or disagree with the following statements about your mentee:

MentEng (VARLAB: how engaged was the mentee)
42. My mentee paid attention during our ASCENTS mentoring sessions
Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
Don't know

LikdMent (VARLAB: how well got on with mentee)
43. I got on well with my mentee
Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
Don't know

XIII.Impact of your ASCENTS mentoring

The next questions are about the benefits and costs of being an ASCENTS mentor.

BenAsc (VARLAB: benefits of taking part in ASCENTS)
44. Do you feel you have benefitted in any of the following ways from taking part in ASCENTS? [Yes/No grid]
Increased subject knowledge
Improved university attainment
Better time management skills
Improved confidence
Increased sense of belonging in the local area
Improved CV
Feeling good about helping others
Socialising with other mentors
Other (please specify)

CostAsc (VARLAB: costs of taking part in ASCENTS)
45. Did you have to do any of the following things less in order to make time for ASCENTS? Please select all that apply.
I had to study less
I had to socialise less
I had to do less paid work
I had to volunteer less
I had to do sports less
Other (please specify)
I did not have to do anything less

TeachInt (VARLAB: if ASCENTS has increased interest in teaching)
46. To what extent has ASCENTS mentoring increased or decreased your interest in teaching?
Increased a lot
Increased somewhat
No difference
Decreased somewhat
Decreased a lot
Don't know

DisadvInt (VARLAB: if ASCENTS has increased interest in career supporting disadvantaged students)

47. To what extent has ASCENTS mentoring increased or decreased your interest in a career supporting disadvantaged students?
Increased a lot
Increased somewhat
No difference
Decreased somewhat
Decreased a lot
Don't know

GdExAsts (VARLAB: good experience or not ASCENTS)
48. Which of the following statements describes your attitude to ASCENTS:
Overall, I have had:
A good experience with the ASCENTS mentoring programme
An okay experience with the ASCENTS mentoring programme
A bad experience with the ASCENTS mentoring programme
Don't know

GdExExpla (VARLAB: explain why good experience or not)
49. Please explain why.
[open text box]

AsBett (VARLAB: change about ASCENTS)
50. What would you change about ASCENTS to make it better?

AnyElse (VARLAB: anything else to add on ASCENTS)
51. If there is anything else you would like to share about ASCENTS, please write it here.
[Open text box]

End
Thank you for taking the time to complete this survey. Your answers will help us improve the programme for future mentors and mentees.

Appendix E: Mentee pre- and post-intervention surveys

ASCENTS 121 Support for Science pupil survey

Section one: Introduction

This survey is from NatCen Social Research, who have been asked to do some research into the ASCENTS 121 Support for Science mentoring programme you are taking part in.

We would like to know how you think the mentoring sessions will help you, if you see yourself studying science after GCSE and how you feel about science in general. Please answer all questions as honestly as you can – there are no right or wrong answers!

If you have any questions about NatCen's research into ASCENTS, please visit our website **http://natcen.ac.uk/taking-part/studies-in-field/evaluation-of-ascents-121-support-for-science/** or email ASCENTS@natcen.ac.uk.

Thank you for taking the time to complete this survey – it will help us find ways to improve ASCENTS!

[NEW PAGE]

Section two: characteristics

First, a couple of questions about you.

72. What is your gender?
Male
Female
Other
Prefer not to say

73. What is your ethnic group?
White British
White Other
Mixed or multiple ethnic groups
Asian / Asian British
Black / African / Caribbean / Black British
Other ethnic group
Prefer not to say

[NEW PAGE]

Section three: science and school

These next questions are about how you feel about school and science.

To what extent do you agree or disagree with the following statements about science and school:

74. I think it is important to do well in science
Strongly agree
Agree
Neither agree or disagree
Disagree

Strongly disagree
Don't know

75. **I find science interesting**
Strongly agree
Agree
Neither agree or disagree
Disagree
Strongly disagree
Don't know

76. I work as hard as I can in science lessons
Strongly agree
Agree
Neither agree or disagree
Disagree
Strongly disagree
Don't know

77. I generally get good marks in science tests and exams
Strongly agree
Agree
Neither agree or disagree
Disagree
Strongly disagree
Don't know

78. I enjoy science lessons
Strongly agree
Agree
Neither agree or disagree
Disagree
Strongly disagree
Don't know

79. I enjoy school
Strongly agree
Agree
Neither agree or disagree
Disagree
Strongly disagree
Don't know

80. Thinking about your predicted grade in GCSE science, how well do you think you will do, compared to the grade you are predicted?
I think I will get a lower grade than the grade I am predicted
I think I will achieve the grade I am predicted
I think I will get a higher grade than the grade I am predicted
Don't know

81. Overall, thinking about your predicted grades and your performance in class, do you think you are currently doing the best you can in GCSE science, or do you think you could do better?
I am doing the best I can in GCSE science
I think I could do better in GCSE science
Don't know

[NEW PAGE]

Section four: further study in science

The next questions are about what you think you might do after you have done your GCSEs.

82. How likely or unlikely do you think you are to continue studying science after GCSE?
Very likely
Likely
Neither likely nor unlikely
Unlikely
Very unlikely
Don't know

83. Which of these statements best describes your feelings towards university?
I haven't thought about university at all
I definitely want to go to university
I might want to go to university
I don't want to go to university
Don't know

84. If you would like to go to university, could you see yourself studying science at university?
Not applicable – I don't want to go to university
I definitely want to study science at university
I might want to study science at university
I don't want to study science at university
Don't know

85. Could you see yourself doing a job involving science one day?
I haven't thought about what I might do for a job at all
I definitely want to do a job involving science
I might want to do a job involving science
I don't want to do a job involve involving science
Don't know

[NEW PAGE]

Section five: science-related activities and support outside of school

The next questions are about any activities you have done in or outside of school to do with science.

In the last year, how often have you been involved in any of the following activities?

86. A school club in anything to do with science
Weekly
Monthly
Several times in the last year
Once or twice in the last year
Never

87. Clubs or projects outside of school in anything to do with science
Weekly
Monthly

Several times in the last year
Once or twice in the last year
Never

88. Reading about science or watching shows to do with science
Weekly
Monthly
Several times in the last year
Once or twice in the last year
Never

89. At home, how often do you get help with your science GCSE homework?
Weekly
Monthly
Several times in the last year
Once or twice in the last year
Never
Prefer not to say

90. In or outside of school, have you had any tutoring or mentoring to help with any of your subjects in the last year?
Yes – private tutoring outside of school
Yes – tutoring or mentoring in school outside of regular lessons
Both of the above
No, never

91. If you have had any tutoring or mentoring in the last year, how helpful or unhelpful was it for improving your performance in school?
Not applicable – I haven't had any tutoring or mentoring
Very helpful
Helpful
Neither helpful nor unhelpful
Unhelpful
Very unhelpful
Don't know

92. **Which of these statements best describes what your parents or carers think about your performance in science?**
They think it is important to I do well in science
They don't think it is important I do well in science
They don't have an opinion on science
Don't know
Prefer not to say

[NEW PAGE]

Section six: what you think of ASCENTS

The next questions are about what you think you will get out of the ASCENTS programme.

93. How confident do you feel that the ASCENTS 121 mentoring programme will help you improve your grades in science?
Very confident
Quite confident
Slightly confident
Not confident at all

Don't know

94. How confident do you feel that the ASCENTS 121 mentoring programme will help you to enjoy science more?

Very confident
Quite confident
Slightly confident
Not confident at all
Don't know

95. Do you think you will need to spend any time on preparation work before your mentoring sessions? If so, approximately how much time do you think will spend preparing for each session?

I don't think I will need to spend any time preparing
Less than 30 minutes
Between 30 minutes and 60 minutes
Between 60 minutes and 90 minutes
More than 90 minutes
Don't know

96. Do you think you will need to spend any time on homework after your mentoring sessions? If so, approximately how much time do you think you will spend on homework after each session?

I don't think I will need to spend any time doing follow up work
Less than 30 minutes
Between 30 minutes and 60 minutes
Between 60 minutes and 90 minutes
More than 90 minutes
Don't know

97. If you think you will need to spend time on preparation or homework for your ASCENTS mentoring sessions, how easy or difficult do you think it will it be to find this time?

Not applicable – I won't need to spend any time on preparation or homework
Very easy
Easy
Neither easy nor difficult
Difficult
Very difficult
Don't know

98. You are scheduled to receive 23 one-hour sessions over 23 weeks. Do you think this will be enough to make a difference to your science GCSE grade, or will it not make a difference?

I think this will be enough to make a difference to my science grade
I do not think this will be enough to make a difference to my science grade
Don't know

[NEW PAGE]

Section seven: why you decided to take part in ASCENTS

And finally, a few questions on why you wanted to take part in ASCENTS.

99. Which of the following best describe your reasons for wanting to take part in the ASCENTS programme? Please tick the top three reasons only.

I thought it would help me do well in my science GCSEs
I thought it would help me get a place at university
I thought it would help me do better in all subjects in school

My parents or carers wanted me to
My teacher wanted me to
I need more help with my GCSE science than I currently get at school or at home
Don't know [exclusive]

100. If there were any other reasons for you wanting to take part in ASCENTS, please write them here.
Open text box

101. **If there is anything you are worried about to do with ASCENTS, please write it here.** Open text box

102. Is there anything else you would like to add?
Open text box

ASCENTS mentee survey, wave two

Post-intervention

Questions are documented as follows:

{Question routing - who is asked the question}

Question Name

Question text

: Question response options

(Variable label)

Textfills from sample include:

TEXTFILL:

Triggering outcomes:

Timestamps:

Sections

vii. Intro
viii. Characteristics
ix. Science and school
x. Further study in science
xi. Your experience of ASCENTS
xii. Your ASCENTS mentor
xiii. Effects of your ASCENTS mentoring

I. Intro

This survey is from NatCen Social Research, who have been asked to do some research into the ASCENTS 121 Support for Science mentoring programme you are taking part in.

Now that you've had your mentoring, we would like to know your thoughts on ASCENTS, if you think it has helped you and if it has changed how you feel about science.

Please answer all questions as honestly as you can – there are no right or wrong answers!

If you have any questions about NatCen's research into ASCENTS, please visit our website:

http://natcen.ac.uk/taking-part/studies-in-field/evaluation-of-ascents-121-support-for-science/

or email ASCENTS@natcen.ac.uk.

Thank you!

II. Characteristics

First, a couple of questions about you. These are to help us with our research. We will not be sharing this information with your teacher or anyone outside of NatCen.

FName (varlab: first name)
103. What is your first name?
[Open text box]

SName (VARLAB: surname)
104. What is your surname?
[Open text box]

DoB (VARLAB: DoB)
105. What is your date of birth? Please write day/month/year e.g. 25/06/1990
[Open text box]

Gender (VARLAB: Gender)
106. What is your gender?
Male
Female
Other
Prefer not to say

EthnGrp (VARLAB: Ethnic group)
107. What is your ethnic group?
White British
White other
Mixed or multiple ethnic groups
Asian / Asian British
Black / African / Caribbean / Black British
Other ethnic group
Prefer not to say

UniMent (VARLAB: University mentor attends)

108. Which of the following universities did your ASCENTS mentor attend? (if you don't know, please ask your teacher)

The University of York
The University of Lincoln
University College London (UCL)
The University of Leeds
The University of Liverpool
Don't know

YrkSch (VARLAB: York school)
YORK MENTEES

109. What is the name of your school?

LnclSch (VARLAB: Lincoln school)
LINCOLN MENTEES

110. What is the name of your school?

LonSch (VARLAB: London school)
LONDON MENTEES

111. What is the name of your school?

LeedsSch (VARLAB: Leeds school)
LEEDS MENTEES

112. What is the name of your school?

113. What is the name of your school?

III. Science and school

These questions are about how you feel about school and science. Please answer about how you felt before your school closed.

To what extent do you agree or disagree with the following statements:

SciImpt (VARLAB: importance of doing well in science)

114. I think it is important to do well in science

Strongly agree
Agree
Neither agree or disagree
Disagree
Strongly disagree
Don't know

SciIntrst (VARLAB: interest in science)

115. **I find science interesting**

Strongly agree
Agree
Neither agree or disagree
Disagree
Strongly disagree
Don't know

SciWrk (VARLAB: how hard work in science)

116. I work as hard as I can in science lessons

Strongly agree

Agree
Neither agree or disagree
Disagree
Strongly disagree
Don't know

SciMark (VARLAB: how good marks in science tests)

117. I generally get good marks in science assessments

Strongly agree
Agree
Neither agree or disagree
Disagree
Strongly disagree
Don't know

SciEnj (VARLAB: how much enjoy science)

118. I enjoy science lessons

Strongly agree
Agree
Neither agree or disagree
Disagree
Strongly disagree
Don't know

EnjSch (VARLAB: how much enjoy school)

119. I enjoy school

Strongly agree
Agree
Neither agree or disagree
Disagree
Strongly disagree
Don't know

PrdGrd (VARLAB: how well will do compared to predicted grade)

120. Thinking about your predicted grade in GCSE science, how well do you think you will do, compared to the grade you are predicted?

I think I will get a lower grade than the grade I am predicted
I think I will achieve the grade I am predicted
I think I will get a higher grade than the grade I am predicted
Don't know

SciBest (VARLAB: whether could do better in GCSE science)

121. Overall, thinking about your predicted grades and your performance in class, do you think you are currently doing the best you can in GCSE science, or do you think you could do better?

I am doing the best I can in GCSE science
I think I could do better in GCSE science
Don't know

SciAsse

This year, GCSE science grades will be based on teacher assessment. How do you think this will affect your grades, compared to taking an exam?

I think I will get a lower grade
I think I will get the same grade
I think I will get a higher grade
Don't know

SchAtt
Did you continue to attend school during school closures?
I attended school on all or most weekdays during school closures
I attended school on some or a few weekdays during school closures
No, I did attend school during school closures

IV. Further study in science

The next questions are about what you think you might do after your GCSEs.

AftGCSE (VARLAB: how likely to continue studying science after GCSE)
122. How likely or unlikely do you think you are to continue studying science after your GCSEs?
Very likely
Likely
Neither likely nor unlikely
Unlikely
Very unlikely
Don't know

WantUni (VARLAB: whether want to go to university)
123. Which of these statements best describes your feelings about university?
I haven't thought about university at all
I definitely want to go to university
I might want to go to university
I don't want to go to university
Don't know

ALL EXCEPT THOSE WHO DO NOT WANT TO GO TO UNIVERSITY
SciUni (VARLAB: whether want to study science at university)
124. If you would like to go to university, could you see yourself studying science at university?
I definitely want to study science at university
I might want to study science at university
I don't want to study science at university
Don't know

SciJob (VARLAB: whether want to do a job involving science)
125. Could you see yourself doing a job involving science one day?
I haven't thought about what I might do for a job at all
I definitely want to do a job involving science
I might want to do a job involving science
I don't want to do a job involve involving science
Don't know

V. Your experience of ASCENTS

The next questions are about your experiences of ASCENTS mentoring.

OverEnjo (VARLAB: whether enjoyed mentoring)
126. To what extent do you agree or disagree with the following statement:
Overall, I enjoyed my mentoring sessions

Strongly agree
Agree

Neither agree nor disagree
Disagree
Strongly disagree
Don't know

Mentlike (VARLAB: liked about mentoring)

127. What, if anything, did you like about the mentoring sessions?
{Open textbox}

Mentdis (VARLAB: disliked about mentoring)

128. **What, if anything, did you *not* like about the mentoring sessions?**
{Open textbox}

MissSess (VARLAB: whether missed any sessions)

129. How many mentoring sessions have missed?

[Numeric open text box; tick box: 'I didn't miss any mentoring sessions']

ANY WHO HAS MISSED ONE OR MORE SESSIONS

WhyMiss (VARLAB: reasons why missed any mentoring sessions)

130. Did you miss any of your ASCENTS sessions for any of the following reasons? Please select any that apply.

I was ill
Problems with transport to or from mentoring
I don't think there's any point trying to improve my grades in GCSE science
My mentor didn't show up
I didn't like my mentor
The mentoring session clashed with other things I wanted to do
I didn't want to be around some of the other people receiving mentoring
I didn't find the mentoring useful
My friends missed their mentoring so I did too
I missed so many mentoring sessions I didn't want to keep going
My parents didn't think it was important for me to attend mentoring
My home life made it hard for me to attend mentoring
I didn't want to do ASCENTS in the first place
None of the above [Exclusive]

TimePrep (VARLAB: time spent preparing for ASCENTS)

131. Did you spend any time preparing for your mentoring sessions? If so, roughly how much time did you spend preparing?

I didn't spend any time preparing before my mentoring sessions
Less than 30 minutes
Between 30 minutes and 60 minutes
Between 60 minutes and 90 minutes
More than 90 minutes
Don't know

TimeHome (VARLAB: time spent on homework for ASCENTS)

132. Did you spend any time on homework specifically for ASCENTS after your mentoring sessions? If so, roughly how much time did you spend on homework after each session?

I didn't spend any time on homework after my mentoring sessions
Less than 30 minutes
Between 30 minutes and 60 minutes
Between 60 minutes and 90 minutes
More than 90 minutes
Don't know

ProbRoom (VARLAB: any problems with mentoring room)

133. Were there any problems with the room where you had your mentoring? Please select all that apply.

The mentoring room was too noisy
The mentoring room was too crowded
The mentoring room was too cold
Other (please specify)
There were no problems

VI. Your ASCENTS mentor

These questions are about your ASCENTS mentor.

OneMent (VARLAB: whether had more than one mentor)

134. Have you had the same mentor for all your ASCENTS sessions, or have you had a different mentor at any point?

I've had the same mentor since I started ASCENTS
I have had more than one mentor since I started ASCENTS

IF HAD MORE THAN ONE MENTOR
ChngMent (VARLAB: why had to change mentor)

135. Were any of the following reasons why you changed mentors? Please select all that apply.

I wanted a mentor with a different gender
I didn't get on with my mentor
My mentor dropped out of ASCENTS
My mentor wasn't helpful
My mentor couldn't come to some of our sessions
Other [please specify]

If you had more than one mentor, please think of the mentor who gave you the most sessions when you answer the following questions.

MentGndr (VARLAB: whether mentor was same gender)

136. Was your mentor the same gender as you?

Yes, my mentor was the same gender as me
No, my mentor was a different gender from me

IF DIFFERENT GENDER
DiffGndr (VARLAB: how felt about mentor of different gender)

137. How did you feel about having a mentor who was a different gender from you?

I would have preferred a mentor who was the same gender
I liked that my mentor was a different gender from me
It didn't make a difference to me what gender my mentor was
Don't know

IF SAME GENDER
SameGndr (VARLAB: how felt about mentor of same gender)

138. How did you feel about having a mentor who was the same gender as you?

I would have preferred a mentor who was a different gender
I liked that my mentor was the same gender as me
It didn't make a difference to me what gender my mentor was
Don't know

To what extent do you agree or disagree with following statement about your mentor:

MentExpl (VARLAB: how well mentor explained things)

139. My mentor explained things in a way that helped me understand them

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
Don't know

LikdMent (VARLAB: how well got on with mentor)

140. I got on well with my mentor

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
Don't know

VII. Effects of your ASCENTS mentoring

These questions are on how helpful or unhelpful you have found ASCENTS.

If you had more than one mentor, please think of the mentor who gave you the most sessions when you answer the following questions.

To what extent do you agree or disagree with the following statements about ASCENTS:

ImprvGrd (VARLAB: how well ASCENTS mentoring will improve GCSE science)

141. My ASCENTS mentoring will help me improve my grades in GCSE science

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
Don't know

ScIntrst (VARLAB: how much more interested in science)

142. My ASCENTS mentoring has helped me become more interested in science

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
Don't know

AftGCSE2 (VARLAB: whether want to study science after GCSE)

143. My ASCENTS mentoring has made me want to study science after GCSE (for example at A-level)

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
Don't know

SpillOver (VARLAB: whether shared ASCENTS learning with others)

144. Did you share learning from your ASCENTS mentoring with anyone else in your school who was not receiving ASCENTS mentoring?

Yes, I did this
No, I did not do this
Don't know

GdExAsts (VARLAB: good experience or not ASCENTS)

145. Which of the following statements describes your attitude to ASCENTS:

Overall, I have had:
a good experience with the ASCENTS mentoring programme
an okay experience with the ASCENTS mentoring programme
a bad experience with the ASCENTS mentoring programme
Don't know

GdExExpla (VARLAB: explain why good experience or not)

146. **Please explain why.**

[open text box]

AsBett (VARLAB: change about ASCENTS)

147. What would you change about ASCENTS to make it better?

AnyElse (VARLAB: anything else to add on ASCENTS)

148. If there is anything else you would like to share about ASCENTS, please write it here.

[Open text box]

End

Thank you!

Appendix F: School lead pre- and post-intervention surveys

ASCENTS School Project Lead Survey, wave one

Pre-intervention

Introduction

{ASK ALL}

Intro

Evaluation of ASCENTS 121 Support for Science

Thank you for agreeing to take part in the ASCENTS 121 Support for Science Evaluation.

This short survey will help us to gather information on your school's provision of science support, programmes and activities for Year 11 pupils. We will also gather information about your experience of ASCENTS so far. Your answers will provide us with contextual information, which will help us to better understand the outcome of the evaluation.

If you have any questions about the evaluation of ASCENTS, please visit our website http://natcen.ac.uk/taking-part/studies-in-field/evaluation-of-ascents-121-support-for-science/ or email ASCENTS@natcen.ac.uk.

To submit responses for this survey, you will need to answer all questions and click "submit" at the end. If you stop the survey, you will need to complete it again from the start.

Thank you for taking the time to complete this survey.

I. School information

{ASK ALL}

SchName (VARLAB: School name)

Please enter your school name:
[Open <300 characters>]

{ASK ALL}

SchPstcde (VARLAB: School postcode)

Please enter your school postcode:
[Open <10 characters>]

{ASK ALL}

ResEmail (VARLAB: Respondent email)

Please enter your email address:
[Open <300 characters>]

I'd prefer not to give my email address.

II. Year 11 participation in science programmes in the past 12 months

PrevIntro

The next set of questions are about the provision of science support, programmes and activities for Year 11 pupils at your school in the **previous academic year.**

Please include support, programmes and activities which took place between **September 2018 and August 2019**.

{ASK ALL}

PrevSciSup (VARLAB: Science support in previous year)

In the previous academic year, which types of science support, programmes and activities has your school provided for Year 11 pupils?

Please select all that apply.

1. One-to-one mentoring/tutoring (the provision of intensive, individualised support aside from normal teaching)
2. Group mentoring/tutoring (the provision of intensive support to a group of students, aside from normal teaching)
3. Field trips
4. Competitions
5. Science Clubs
6. Debates
7. Work Placements
8. Volunteering (e.g. at a museum or science event)
9. Training (e.g. attending a course outside of normal science teaching)
10. Careers events
11. Other (please specify)
12. The school has not provided any additional science support, programmes or activities in the past 12 months [Exclusive code].
13. Don't know

{ASK IF PrevSciSup = 1 or 2}

PrevMentReceive (VARLAB: Who received mentoring in previous year)

As your school provided mentoring/tutoring in science in the previous academic year, the next few questions will ask about this in more detail.

In the previous academic year, which Year 11 pupils received mentoring/tutoring in science at your school?

Please select all that apply.

1. All Year 11 pupils [Exclusive Code]
2. High attaining Year 11 pupils
3. Middle attaining Year 11 pupils
4. Low attaining Year 11 pupils
5. Year 11 pupils with Special Educational Needs
6. Year 11 pupils eligible for Pupil Premium
7. Other group of Year 11 pupils (Please specify) [open text box]

{ASK IF PrevSciSup = 1 or 2}

PrevMentDeliver (VARLAB: Who delivered mentoring in previous year)

In the previous academic year, who delivered mentoring/tutoring in science for Year 11 pupils?

Please select all that apply.

1. Teachers
2. Teaching assistant or learning support assistant
3. Other pupils at the school
4. Pupils who have recently left the school
5. Parents or carers
6. External providers
7. University students
8. Other (please specify) [Open textbox]

{ASK IF PrevSciSup = 3-12}

PrevMentNot (VARLAB: Why was there no mentoring in previous year)

Why has your school not provided mentoring/tutoring for Year 11 pupils in the previous academic year?

Please select all that apply.

1. Lack of pupil interest
2. Lack of staff interest
3. Lack of funding
4. Lack of available facilities
5. Lack of support from senior management
6. Lack of staff time
7. Lack of support from staff in the science department
8. Other (please specify)

III. Year 11 participation in science programmes in the current academic year

CurInto

The next set of questions are about the provision of science support, programmes and activities for Year 11 pupils at your school in the **current academic year.**

When thinking about the current academic year, please do not include ASCENTS but include all other science support, programmes and activities that will be taking place between **September 2019 and August 2020**.

{ASK ALL}

CurSciSup (VARLAB: Science support in current year)

In the current academic year, which types of science support, programmes and activities will your school provide for Year 11 pupils?

Please do not include ASCENTS.

Please select all that apply.

1. One-to-one mentoring/tutoring (the provision of intensive, individualised support aside from normal teaching)
2. Group mentoring/tutoring (the provision of intensive support to a group of students, aside from normal teaching)
3. Field trips
4. Competitions
5. Science Clubs
6. Debates
7. Work Placements
8. Volunteering (e.g. at a museum or science event)
9. Training (e.g. attending a course outside of normal science teaching)
10. Careers events
11. Other (please specify)
12. The school will not provide any additional science support, programmes or activities in the current academic year [Exclusive code].

{ASK IF CurSciSup = 1 or 2}

CurMentReceive (VARLAB: Who received mentoring in current year)

As your school will provide mentoring/tutoring in science in addition to ASCENTS in this academic year, the next few questions will ask about this in more detail.

In the current academic year, which Year 11 pupils will receive mentoring/tutoring in science at your school?

Please do not include ASCENTS when answering this question.

Please select all that apply.

1. All Year 11 pupils [Exclusive Code]
2. High attaining Year 11 pupils
3. Middle attaining Year 11 pupils
4. Low attaining Year 11 pupils
5. Year 11 pupils with Special Educational Needs
6. Year 11 pupils eligible for Pupil Premium
7. Other group of Year 11 pupils (Please specify) [open text box]

{ASK IF CurSciSup = 1 or 2}

CurMentDeliver (VARLAB: Who delivered mentoring in current year)

In the current academic year, who will be delivering mentoring/tutoring in science for Year 11 pupils?

Please do not include ASCENTS when answering this question.

Please select all that apply.

1. Teachers
3. Teaching assistant or learning support assistant
4. Other pupils at the school
5. Pupils who have recently left the school
6. Parents or carers
7. External providers
8. University students
9. Other (please specify) [Open textbox]

IV. Year 11 participation in mentoring/tutoring programmes outside of the science curriculum

CurMentNotSciIntro

We will now ask you some questions about the provision of mentoring/tutoring programmes **outside the science curriculum** for Year 11 pupils at your school for this academic year.

{ASK ALL}

CurMentNotSci (VARLAB: Non-science mentoring in current year)

In the current academic year, will Year 11 pupils receive mentoring/tutoring **outside of the science curriculum**?

This could include mentoring/tutoring for other subjects such as English or Maths or other non-academic mentoring/tutoring.

1. Yes
2. No

{ASK IF CurMentNotSci = 1}

CurMentNotSciReceive (VARLAB: Who received non-science mentoring in current year)

In the current academic year, which Year 11 pupils will be eligible for receiving mentoring/tutoring outside of the science curriculum?

Please select all that apply.

1. All Year 11 pupils [Exclusive Code]
2. High attaining Year 11 pupils
3. Middle attaining Year 11 pupils
4. Low attaining Year 11 pupils
5. Year 11 pupils with Special Educational Needs
6. Year 11 pupils eligible for Pupil Premium
7. Other group of Year 11 pupils (Please specify) [open text box]

V. Experience of ASCENTS so far

ASCENTSIntro

This section will ask about your experience of ASCENTS so far.

{ASK ALL}

RecruitNumber

Approximately, how many puplls who are currently in Year 11 were eligible for ASCENTS at the stage of recruitment?

To be eligible for ASCENTS, pupils must meet the following criteria:

- be in Year 11 during the academic year of mentoring sessions (i.e. 2019/20);
- eligible for pupil premium;
- predicted a grade 3 to 5 in GCSE science; and
- studying combined double award science (foundation or higher).

[Text fill]

{ASK ALL}

RecruitApproach

Were all these pupils approached during recruitment?

Yes
No

{ASK ALL}

RecruitActivPupil (VARLAB: Recruitment events for pupils)

When recruiting pupils for ASCENTS, were any of the following events or activities used to promote ASCENTS to eligible **pupils** in your school?

Please select all that apply.

1. Paper letters, fliers or leaflets
2. Posters displayed in the school
3. Text messages
4. Emails
5. Introduction events or presentations
6. Mentions during lessons or assemblies
7. Individual face to face recruitment
8. Other (please specify)
9. We did not do any activities to promote ASCENTS to pupils [Exclusive code]

{ASK ALL}

RecruitActivParent (VARLAB: Recruitment events for parents)

Were any of the following events or activities used to promote ASCENTS to **parents/carers** of eligible pupils in your school?

Please select all that apply.

1. Paper letters, fliers or leaflets
2. Posters displayed in the school
3. Text messages
4. Emails
5. Introduction events or presentations
6. Telephone calls
7. Individual face to face recruitment
8. Other (please specify)
9. We did not do any activities to promote ASCENTS to parents [Exclusive code]

{ASK ALL}

RecruitChal (VARLAB: Main challenges for recruitment of pupils)

What was the main challenge in recruiting pupils and gaining permission from their parents/carers to participate in ASCENTS?

Please select up to 3 main challenges.

1. Lack of pupil interest
2. Difficulties in communicating with parents/carers
3. Difficulties in receiving permission slips from parents/carers
4. Lack of parents/carers interest and/or support in the programme
5. Difficulties meeting pupil eligibility criteria
6. Pupil concerns about allocation to intervention and control groups
7. Parents/carers concerns about allocation to treatment and control groups
8. Other (please specify)
9. There were no challenges [Exclusive]

{ASK ALL}

BarrierOrg (VARLAB: Barriers to organising ASCENTS)

What has been the main barrier for organising ASCENTS sessions at your school?

1. Lack of suitable space to hold the sessions
2. Timetabling constraints
3. Lack of support from senior management
4. Lack of time to plan
5. Other (please specify)
6. There were no barriers [Exclusive]

VI. Next steps

{ASK ALL}

Nextsteps

Thank you for taking the time to complete this survey. We really appreciate your contribution.

Best wishes,

The ASCENTS Evaluation team

ASCENTS Teacher survey, Wave two: Post-intervention - Survey script

Introduction

{ASK ALL}

Intro

Evaluation of ASCENTS 121 Support for Science

This survey was created by NatCen Social Research for the evaluation of ASCENTS mentoring.

Your answers will help us to understand your experience of ASCENTS and find ways to improve the programme.

If you have any questions about the evaluation of ASCENTS, please visit our website http://natcen.ac.uk/taking-part/studies-in-field/evaluation-of-ascents-121-support-for-science/ or email ASCENTS@natcen.ac.uk.

To submit responses for this survey, you will need to answer all questions and click "submit" at the end. If you stop the survey, you will need to complete it again from the start.

Thank you for taking the time to complete this survey.

VII. School information

SchInfoIntro

The first few questions are about your school. These are to help us match your responses to the survey you completed in Autumn 2019. Your details will not be shared outside the NatCen team and all answers will be reported anonymously.

SchName (VARLAB: School name)

1. Please enter your school name:
   [Open text box <300 characters>]

SchPstcde (VARLAB: School postcode)

2. Please enter your school postcode:
   [Open text box <10 characters>]

VIII. Allocation to intervention and control groups

ASCENTSIntro

This next section will ask about the allocation of pupils to the intervention group (i.e. pupils who received mentoring) and the control group (i.e. pupils who **did not** receive mentoring).

{ContrFeel and ContrFeelExp on same page}

ContrFeel (VARLAB: How did control group feel)

3. Overall, how satisfied or unsatisfied were pupils in the **control group** with their allocation?

   Very unsatisfied
   Unsatisfied
   Neutral
   Satisfied
   Very satisfied

ContrFeelExp

4. Please explain why.

   [Open text box]
   Don't know

Contam (VARLAB: Contamination of control group)

5. Did pupils in the **control group** attend any of the ASCENTS mentoring sessions?

   Yes
   No
   Don't know

{If Contam = Yes}

ContamNum

6. How many pupils in the control group attended ASCENTS mentoring sessions?

[Numeric 0…30]
Don't know

{IntFeel and IntFeelExp on same page}
IntFeel (VARLAB: How did intervention group feel)

6. Overall, how satisfied or unsatisfied were pupils in the **intervention group** with their allocation?

   Very unsatisfied
   Unsatisfied

Neutral
Satisfied
Very satisfied

IntFeelExp

7. Please explain why.

   [Open text box]
   Don't know

SpillOver (VARLAB: Spillover from treatment group)

8. Did pupils in the **intervention group** share their learning from ASCENTS mentoring with any other pupils in the school who were **not** receiving ASCENTS mentoring?

   Yes
   No
   Don't know

{If SpillOver = Yes}

SpillOverCtrl (VARLAB: Spillover to control group)

9. Did pupils in the intervention group share their learning from ASCENTS mentoring with pupils in the control group?
   Yes
   No
   Don't know

IX. Delivery of ASCENTS sessions

The next section includes questions about how mentoring sessions were delivered in your school and possible challenges.

SchDsg (VARLAB: How many sessions delivered)

10. How many ASCENTS sessions were delivered at your school?

    [Numeric 0..23]
    Don't know

WhnASC (VARLAB: When were sessions)

11. When did you hold the ASCENTS sessions? If sessions were held at different times, please answer about when you held the most sessions.
    Before the start of the school day
    During the school lesson time
    During breaktimes, including lunchtime
    After school
    Other (please specify)

LngthASC (VARLAB: How long were sessions)

12. How long were the ASCENTS sessions?

Less than one hour
One hour
More than one hour

WhreASC (VARLAB: Where were sessions)

13. Where did you hold ASCENTS sessions in your school?

Please select all that apply.

Classroom
Library
Computer room
Hall
Other (please specify)

StaffASC (VARLAB: Which staff members supervised sessions)

14. Which staff member(s) were involved in supervising ASCENTS sessions?

Please select all that apply.
Science teacher
Non-science teacher
Teaching assistant or learning support assistant
Other (please specify)

BarrierOrg (VARLAB: Barriers to organising ASCENTS)

15. What were the main challenges in delivering ASCENTS at your school this year?

Please select up to three.

Lack of pupil interest
Lack of staff interest
Timetabling constraints
Lack of time to plan
Lack of suitable space to hold the sessions
Lack of support from senior management
Lack of staff time
Lack of support from staff in the science department
Other (please specify)
There were no challenges [Exclusive]

X. Impact of ASCENTS mentoring

The next questions are about the benefits and disadvantages of the ASCENTS programme.

BenePpl (VARLAB: Pupil benefits of ASCENTS)

16. Which, if any, were the benefits for pupils who received mentoring (i.e. the intervention group)?

Please select all that apply.

Improved attendance on days of ASCENTS sessions
Improved attitude to science in school
Improved attitude to science outside of school
Improved understanding of science
Improved confidence in science
Increased science aspirations
Improved attainment in science
Improved mock GCSEs in science
Higher grades in science GCSEs
Higher grades in other GCSEs
Increased motivation to study all subjects
Increased likelihood to take up further study of science (e.g. AS and A-Levels)
Improved self-confidence
Other (please specify)
None of the above [Exclusive code]

ImpctGCSE (VARLAB: Impact of grading system on GCSEs)

17. How do you think this year's GCSE grading system (i.e. no final exams) will impact mentees' GCSE science grades?

    Grades will be higher
    Grades will be unchanged
    Grades will be lower
    Don't know

ImpctGCSEwhy (VARLAB: Impact of grading system on GCSEs explained)

18. Why?

[Open textbox]
Don't know

DisPpl (VARLAB: Pupil disadvantages of ASCENTS)

19. Which, if any, were the disadvantages for pupils who received mentoring (i.e. the intervention group)?

Please select all that apply.

Pupils missed timetabled lessons
Pupils diverted attention away from other subjects to focus on science
Pupils received lower grades in other GCSEs
Other (please specify)
None of the above [Exclusive code]

BeneTchr (VARLAB: Teacher benefits of ASCENTS)
20. What, if any, were the benefits of ASCENTS mentoring for teachers?
[Open textbox]
No benefits
Don't know

DisTchr (VARLAB: Teacher disadvantages of ASCENTS)
21. What, if any, were the disadvantages of ASCENTS mentoring for teachers?
[Open textbox]
No disadvantages
Don't know

BeneSchVARLAB: School benefits of ASCENTS)
22. What, if any, were the benefits for your school of being involved with the ASCENTS programme?
[Open textbox]
No benefits
Don't know

DisSch (VARLAB: School disadvanatges of ASCENTS)
23. What, if any, were the disadvantages for your school of being involved with the ASCENTS programme?

[Open textbox]
No disadvantages
Don't know

AsBett (VARLAB: change about ASCENTS)

24. What, if anything, would you change about ASCENTS to make it better?

[Open textbox]
Don't know

{RecAsc and RecWhy on same page}

RecAsc (VARLAB: Recommend ASCENTS)

25. Would you recommend ASCENTS to other schools?

Yes
No
Don't know

RecWhy (VARLAB: Why recommend ASCENTS)

26. Why?

[Open textbox]
Don't know

AnyElse (VARLAB: anything else to add on ASCENTS)

27. If there is anything else you would like to share about ASCENTS, please write it here.

[Open text box]

XI. Next steps

{ASK ALL}

Nextsteps

Thank you for taking the time to complete this survey. We really appreciate your contribution.

Best wishes,

The ASCENTS Evaluation team

Appendix G: School lead interview topic guide

P13232 ASCENTS Evaluation

Interview Topic Guide – Teacher interviews

Aim of the interview

The aim of the post-intervention teacher interviews is to gather information and explore views on:

- ASCENTS delivery, any challenges experienced and what could be improved
- Perceived outcomes/impact of the project on participating and non-participating pupils, classroom learning dynamics, teacher workload, class management and the whole school
- Business as usual (i.e. science support and mentoring for Y11 pupils)
- Implications of school closures for GCSE science grades

The interview will last around **30 minutes.**

The topic guide

This guide sets out several topics and questions that will be covered during the interviews. The interview is conversational in style and will develop and expand on the issues brought up by the participant. The guide does not contain follow-up probes and questions like `why', `when', and `how', etc. as participants' contributions will be explored in this way, as far as is feasible, during the interview. Researchers will use prompts and probes to understand how and why views, behaviours and experiences have arisen.

1. INTRODUCTION

Aim: to remind the participant about the aims of the research, explain how the interview will be conducted and how the data will be used.

Introduce yourself and NatCen Social Research.

Thank you for agreeing to take part.

Introduce the study:

- Independent evaluation of the ASCENTS 121 Support for Science Programme
- Commissioned by the Education Endowment Foundation
- Interview is to gather your views on the delivery and outcomes of ASCENTS 121 Support for Science

The information you provide will be used to write a report for the Education Endowment Foundation. All information will be treated confidentially. No individual or school will be named in the report and nothing you say will be attributed to you.

We would like to record the interview, so we have an accurate record of what is said.

Recorder is encrypted, and files stored securely in line with General Data Protection Regulation (GDPR)

Only the research team will have access to the recordings

The interview will last around 30 minutes.

Any questions?

Permission to start recording.

Turn on recorder - obtain verbal consent to participate.

2. PARTICIPANT BACKGROUND

Aim: to 'warm up' participant and to understand their role in the delivery of ASCENTS. [max 5 mins]

- Brief overview of role in the institution
  - Length of service
  - Involvement in Science GCSEs
- Brief explanation of role and involvement in ASCENTS

3. BUSINESS AS USUAL

Aim: to understand current provision of support and activities for Y11 pupils and how ASCENTS fits into this. [about 5 mins]

- Mentoring/tutoring in science (apart from ASCENTS) available to Y11 pupils this academic year
  - Whether take up is mandatory or voluntary
  - Level of take up
  - Whether pupils in treatment and control groups take part
- Other science support available to Y11 pupils this academic year
  - Whether take up is mandatory or voluntary
  - Level of take up
  - Whether pupils in treatment and control groups take part
- Tutoring in other subjects available to Y11 pupils this academic year
  - Whether take up is mandatory or voluntary
  - Level of take up
  - Whether pupils in treatment and control groups take part
- Any other mentoring (apart from ASCENTS) available to Y11 pupils this academic year
  - Whether take up is mandatory or voluntary
  - Level of take up
  - Whether pupils in treatment and control groups take part

- Whether any activities or programmes available in the previous academic year were discontinued because of ASCENTS.

4. PERCEPTIONS OF THE INTERVENTION

Aim: to explore participant's expectations of ASCENTS and their views on the support received. [max 5 mins]

- *If involved in project sign-up* - Reasons for interest in taking part
- Whether information received about ASCENTS was comprehensive enough
    - Anything they would have liked more information on
- How they found working with university partner on ASCENTS
    - Any additional support needed

5. IMPLEMENTATION

Aim: to gather information on the delivery of ASCENTS including any challenges experienced. [5-10 mins]

- Brief overview of ASCENTS delivery
    - When sessions took place
    - Where sessions took place
    - Who supervised the sessions
- Perceived level of mentee attendance
    - Reasons for non-attendance
- Any challenges setting up ASCENTS and how addressed
    - Pupil interest
    - Staff interest
    - Senior leadership support
    - Timetable constraints
    - Lack of suitable space
- Any challenges delivering ASCENTS and how addressed
    - Mentee non-attendance
    - Mentor non-attendance
    - Engagement of mentees/mentors
- Any way they think ASCENTS delivery may be improved

6. PERCEIVED OUTCOMES

Aim: to explore participant's views on the outcomes of ASCENTS, including on participating and non-participating pupils, classroom learning dynamics, teachers' workload and class management and the whole school. [5-10 mins]

- Perceived outcomes of ASCENTS for mentees
    - Interest in science in and outside of the classroom
    - Understanding of science
    - Self-confidence
    - Science attainment
    - GCSE science grades
    - Other GCSE grades
- Whether outcomes are likely to vary by mentee socio-demographic and other characteristics
    - Gender
    - Ethnicity
    - Prior attainment
    - Prior attitude to science/school
    - Any others
- Whether they think this year's GCSE grading system will impact on mentees' science GCSE grades and how/why
- Perceived outcomes of ASCENTS on classroom learning dynamics
    - Pace of learning
    - Mentees sharing tips with non-participating pupils
    - Resentment and/or discouragement from non-participating pupils
- Perceived outcomes of ASCENTS for teachers
    - Workload
    - Classroom management
    - Relationship with mentees
- Perceived outcomes of ASCENTS for the school

7. CLOSE

- Final closing comments – anything else to raise
- Any questions?

End recording

- Thank participant and reaffirm confidentiality and anonymity

Appendix H: University lead interview topic guide

Evaluation of ASCENTS 121 Support for Science Programme

Interviews with Programme Managers: Pre-intervention interview

Topic Guide

Aim of the interview:

The aim of pre-intervention programme manager interviews is to gather information and explore views relating to:

- Decision to take part in ASCENTS
- Mentor and school recruitment
- Relationships (both planned and expected) between programme manager and Lead University, mentors, schools and other universities
- Suggestions for improvement

The topic guide:

This guide sets out a number of topics and questions that will be covered during interviews. The interview is conversational in style and will develop and expand on issues brought up by the participant. The guide does not contain follow-up probes and questions like `why', `when', and `how', etc. as participants' contributions will be explored in this way, as far as is feasible, during the interview. Researchers will use prompts and probes in order to understand how and why views, behaviours and experiences have arisen.

The interview will last around **one hour.**

1. Introduction (5 min)

- Introduce yourself and NatCen Social Research
- Thank participant for agreeing to take part
- Introduce the study:
    - Evaluation of the ASCENTS 121 Support for Science Programme
    - Commissioned by the Education Endowment Foundation
    - Interview is part of the process evaluation and aims to gather information about decision to take part in ASCENTS, mentor and school recruitment, and relationships between universities, mentors and schools.
- We may be asking about things which may seem obvious or repetitive of information we already have – this is so we have an accurate record of how ASCENTS was intended to be delivered and of how it was delivered in practice, including whether any variation occurred across universities.

- Participation is voluntary – there are no right or wrong answers and they can choose to have a break at any time or not to discuss any topic.
- Digital recording – We would like to record the interview, so we have an accurate record of what is said. Only the research team will have access to the recordings. Data kept securely in accordance with GDPR. Check OK.
- Findings will be used to inform the report for EEF – no individual participant will be named in the report, as there is a small number of universities involved a knowledgeable reader may recognise universities and project leads from their accounts of implementation.
- Reminder of interview length - will last around one hour. Check OK.
- Any questions/concerns?
- Permission to start recording

Ask for permission to start recording

1. **Background and context**
   Aim: To gather background information about the participant and the university context

   Participant background
   - Role in the university, including:
     - What department/unit work for
     - Who they report to
   - Role and responsibilities in delivery of ASCENTS

2. **Decision to take part in the ASCENTS programme**
   Aim: To gather information on how university became involved in ASCENTS and their motivations for doing so

   Decision to take part
   - How they first heard about ASCENTS
     - Adequacy of information provided
     - Any aspects where they feel more info would have been needed
   - Who was involved in deciding whether to participate
     - E.g. senior leadership, staff, etc
   - How the university lead was selected and respective responsibilities within university delivery team allocated
     - Who was involved in decision
   - Why university/university lead decided to take part
     - How well do the objectives of ASCENTS align with objectives of department/unit co-ordinating ASCENTS
     - Expected outcomes for mentors
     - Expected outcomes for mentees
     - Relative importance of expected outcomes

3. **Mentor recruitment**
   Aim: To understand the process of mentor recruitment as well as the outcomes and any suggestions for improvement

Mentor Recruitment Process

- How was ASCENTS advertised to mentors
    - E.g. careers website, events, university website, announcements in lectures/seminars, social media
- How did mentors apply
    - E.g. careers website, email, paper sign-up forms
- Eligibility requirements
    - Understanding of requirements
    - How were they enforced/checked
    - Any flexibility
    - Unclear criteria or situations (e.g. iGCSE)
- Was the process modified as it was on-going

Reflections about mentor recruitment

- What went well
- What didn't go as well
- Suggested improvements - i.e. if to do again, what would they change

4. School recruitment

Aim: To understand the process of school recruitment as well as the outcomes and any suggestions for improvement

School Recruitment Process

- How was ASCENTS advertised to schools
    - E.g. careers website, university website, announcements in lectures/seminars
- How did schools apply
    - E.g. university website, email, paper sign-up forms
- Eligibility requirements
    - Understanding of requirements
    - How were they enforced/checked
    - Any flexibility
    - Unclear criteria or situations (e.g. schools outside catchment area)
- Was the process modified as it was on-going

Reflections about school recruitment

- What went well
- What didn't go as well
- Suggested improvements - i.e. if to do again, what would they change

5. Interactions with Lead University

Aim: To gather information on interactions between programme manager and the Lead University

Interactions with the Lead University (University of Lincoln)

- Information provided by Lincoln
    - Content, format, etc
    - Adequacy of this information
    - Anything that is unclear
- Other support received
    - What type of support

- How often
- Adequacy of support

6. Interactions with other universities

Aim: To gather information on interactions between programme manager and other universities (e.g. peer to peer)

Communications and support so far

- Communications with other universities
  - Purpose of communication
  - Who involved
  - Mode (e.g. telephone conference, face-to-face meetings)
  - Frequency
  - Demand driven vs. planned

Planned communications

- Planned support over the school year to other universities
  - What type of support
  - How often

7. Interactions with mentors

Aim: To gather information on interactions between programme manager and mentors

- Planned support over the school year to mentors
  - What type of support
  - Provider of support
    - E.g. University Lead, teacher, mentor-mentor, etc
  - Mode of support
    - E.g email, face-to-face meetings, telephone, etc
  - Frequency of support
    - Occasional vs. regular
  - Demand driven vs. planned
- Anticipated challenges

8. Interactions with school programme lead and teachers

Aim: To gather information on interactions between programme manager and schools and teachers

Programme Lead (i.e. school ASCENTS contact)

- Planned support over the school year for Programme Lead
  - What type of support
  - How often
  - Anticipated challenges

Teachers (i.e. those supervising ASCENTS sessions)

- Planned support over the school year for teachers
  - What type of support
  - How often
  - Anticipated challenges

9. Final reflections (5 min)

Aim: To gather final reflections and any suggestion for improvement.

- Any suggestions for improvement
- Any final thoughts/reflections – anything not mentioned they would like to add.

TURN OFF RECORDER

Thank interviewee for their participation. Confirm next steps for the project. Reiterate anonymity and confidentiality points above.

Appendix I: Mentor training observations framework

ASCENTS Mentor Training Observation

Date of observation (DD/MM/YY)	
Time and duration of training session, including breaks.	
Location	
Trainer(s)	
Observer	

1. Attendee details and setting.
Record who was present (number of mentors and trainers). Record the setting of the training (location, set up of room, technology used).

2. Overview of training materials.
Record any training materials used by the trainer during the session (e.g. slides, videos) Record any training materials given to mentors (e.g. handouts, notes, information packs).

3. Overview of structure and content
Record a brief overview of the structure and content of the training. Note whether the training ran as planned. (Use boxes 6 – 11 in the template to record specific details about each individual session)

4. Overview of mentor engagement
Comment on how engaged mentors are overall. Identify the topics that appeared of more or less interest to the mentors. Comment on group dynamics (e.g. only certain mentors participating or leading the discussions). (Use boxes 6 – 11 in the template to record specific details about each individual session)

5. Overview of trainer delivery of training
Record impressions regarding accessibility of the training: Was the training pitched at the right level and tailored to mentors involved? Was plain English used? Was the right level of detail provided? Record the extent to which trainers listened to mentors contributions, provided opportunities for mentors to participate, and responded supportively and helpfully to mentors' queries. Record any other impressions about trainers' communications skills and identify where more time, explanation and /or examples were needed. (Use boxes 6 – 11 in the template to record specific details about each individual session)

6. Introduction session
Record the content of the introduction given to mentors. Comment on how engaged mentors are (e.g. whether they are actively taking part in the session, answering questions, asking questions) Record main issues / concerns / points for clarification raised by participants, and responses from trainer (e.g. if there were concerns raised about certain instructions or if there was any push back among mentors).

7. Mentoring talk session
Record the content of the mentoring talk session. Include specific information on how the delivery team framed the benefits of ASCENTS for mentors.

Comment on how engaged mentors are (e.g. whether they are actively taking part in the session, answering questions, asking questions)

Record main issues / concerns / points for clarification raised by participants, and responses from trainer (e.g. if there were concerns raised about certain instructions or if there was any push back among mentors).

8. Mentoring training session

Record the content of the mentoring training session. Include specific information on:

- How comprehensive (e.g. were all key points covered, or did mentors have to ask) was the advice in relation to: format and structure of ASCENTS sessions; content of ASCENTS sessions; preparing for ASCENTS sessions and giving feedback to pupils; logistical and practical aspects.
- Whether specific prescriptions or recommendation given to mentors in relation to: format and structure of ASCENTS sessions; content of ASCENTS sessions; preparing for ASCENTS sessions and giving feedback to pupils; logistical and practical aspects.
- Whether key risks were identified and discussed
- What support the team offered mentors to overcome potential obstacles

Comment on how engaged mentors are (e.g. whether they are actively taking part in the session, answering questions, asking questions)

Record main issues / concerns / points for clarification raised by participants, and responses from trainer (e.g. if there were concerns raised about certain instructions or if there was any push back among mentors).

9. Safeguarding training

Record the content of the safeguarding training.

Comment on how engaged mentors are (e.g. whether they are actively taking part in the session, answering questions, asking questions)

Record main issues / concerns / points for clarification raised by participants, and responses from trainer (e.g. if there were concerns raised about certain instructions or if there was any push back among mentors).

10. Record the Review of Day 2 session.

Record the content of the review session for Day 2.

Comment on how engaged mentors are (e.g. whether they are actively taking part in the session, answering questions, asking questions) Record main issues / concerns / points for clarification raised by participants, and responses from trainer (e.g. if there were concerns raised about certain instructions or if there was any push back among mentors).

11. Question and answer session Record the content of the question and answer session. Comment on how engaged mentors are (e.g. whether they are actively taking part in the session, answering questions, asking questions) Record main issues / concerns / points for clarification raised by participants, and responses from trainer (e.g. if there were concerns raised about certain instructions or if there was any push back among mentors).

12. Any other observations.

This document is available for download at https://educationendowmentfoundation.org.uk

Education
Endowment
Foundation

The Education Endowment Foundation
5th Floor, Millbank Tower
21–24 Millbank
London
SW1P 4QP

https://educationendowmentfoundation.org.uk

@EducEndowFoundn

Facebook.com/EducEndowFoundn