

# Typology of attainment-raising activities conducted by HEPs: Rapid Evidence Review

Working paper: updated June 2022

## Contents

<b>1. Executive Summary</b>	<b>2</b>
1.1 Overview of the report	2
1.2 Recommendations	4
<b>2. Introduction</b>	<b>5</b>
<b>3. Methodology</b>	<b>5</b>
3.1 Evidence review search criteria	6
3.2 Approach to developing the typology	7
<b>4. Summary of the literature</b>	<b>8</b>
4.1 Attainment gaps and student outcomes	8
4.2 Attainment-raising Typology	9
4.2.1 Aspiration-raising activities	9
4.2.2 Activities to develop soft / study skills	14
4.2.3 Teaching of the national curriculum	16
4.2.4 School governance	19
<b>4. Discussion of evidence</b>	<b>21</b>
<b>5. Recommendations</b>	<b>22</b>
<b>6. Bibliography</b>	<b>24</b>

# 1. Executive Summary

## 1.1 Overview of the report

Following the Office for Students' (OfS) recent call for universities and other Higher Education Providers (HEPs) to do more to raise the academic attainment of school students through widening participation (WP) activities,<sup>1</sup> this report provides a review of the relevant literature and sets out a typology of different interventions, assessing the strength and limitations of the evidence base. It is intended to help the sector understand:

- What interventions HEPs are currently delivering to support improvements in attainment for school-aged students (both primary and secondary);
- The extent to which these interventions have been evaluated and the quality of this evaluation;
- How TASO and the HE sector could enhance the evidence-base in future to help reduce attainment gaps.

Table 1 below draws on Anthony's (2019) research to develop a typology of attainment-raising activities and summarise the emerging findings from this rapid evidence review.

*Table 1. Typology of attainment-raising activities and summary of the existing evidence.*

Type of intervention	What do interventions involve?	How do they work?	Are they effective?
Aspiration-raising activities	Common activities include open days, campus visits, subject tasters, and pastoral mentoring.  Interventions tend to be combined in a package (black box)	Activities tend to focus on developing knowledge of HE; awareness of degree subjects; and building confidence.  Attainment is considered a by-product of raising aspirations.	Research has not established a clear causal link between aspirations and attainment.  Young people from disadvantaged backgrounds have higher aspiration levels than HE participation and expectations of progression to HE.
Activities to develop study / soft skills	Practical activities or support - often delivered in a group format - designed to	Activities focus on improving study skills - such as reading, critical thinking,	The outcomes that interventions aim to improve are extremely varied.

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<https://www.officeforstudents.org.uk/news-blog-and-events/press-and-media/universities-should-put-shoulder-to-the-wheel-to-help-improve-school-attainment/>

	enhance attitudes and technique to improve learning.	essay writing, metacognitive strategies - or attitudes to learning, to equip and motivate students to achieve higher attainment.	As a result, the impact on pupil attainment has not been systematically evaluated.  Interventions are often delivered in combination, so the specific relationship to attainment is difficult to isolate.
Teaching of the national curriculum	Academic tutoring, revision or booster classes, and project work.	The focus is on raising attainment through teaching of the national curriculum.	International literature points towards a strong link between academic tutoring and attainment.  Tutoring can be most effective when: <ul style="list-style-type: none"> <li>• Targeted at disadvantaged students</li> <li>• Delivered across age groups by university students</li> <li>• Programmes foster collaborative relationships between tutors and students.</li> </ul>
School governance	Partnerships between schools and HE providers are typically formed through university sponsorship of schools, professional	The mediating mechanisms between the intervention and attainment-raising as an outcome are not clear. The assumption is that	Various type 1 and 2 studies suggest benefits to HE provider involvement in school governance, sponsored schools,

	development opportunities for teachers, and placing university staff as governors of schools.	interventions focus on enhancing institutional-level factors that contribute to improved attainment.	and teacher training. However, the research does not demonstrate a causal link with attainment.
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## 1.2 Recommendations

- **Few interventions currently set out how they are expected to facilitate improvements in attainment.** We therefore recommend that HEPs develop theories of change for any planned attainment-raising activities.
- **Many studies do not demonstrate a causal link between interventions and higher attainment.** There is a clear need for more type 3 research in this area, specifically that which links to attainment data.
- **There is a lack of consistency in the outcome measures used in studies which inhibit cross-study comparisons.** Whilst we advocate for studies to use attainment data to assess impact, we acknowledge that the lag time between an intervention and attainment outcomes poses a challenge. Therefore, we encourage HEPs to measure intermediate outcomes using validated survey scales. TASO is working to develop survey scales which we expect to publish towards the end of 2022 and will encourage HE providers to use.
- **There should be more collective learning across the HE sector on what works to improve attainment.** TASO views this report as a working document and would encourage HEPs to share examples of previous or current evaluations on attainment-raising activities so that we can collectively build our understanding of what works.

## 2. Introduction

In February 2022 the Office for Students (OfS) called for universities and other Higher Education Providers (HEPs) to do more to raise the academic attainment of school students through widening participation (WP) activities.<sup>2</sup> Evidence shows that academic achievement is the most important predictor of university progression (Crawford, 2014; Crawford *et al.*, 2016). Yet there are persistent equality gaps in GCSE attainment. In the 2020/21 academic year 30% of students eligible for free-school meals (FSM) achieved a grade 5 or above in English or maths GCSE compared to 57% of non-free school meal students.<sup>3</sup> In this context, OfS emphasises the importance of focusing interventions on reducing pre-16 attainment gaps.

This paper provides a review of the literature on interventions and activities carried out by higher education providers (HEPs) to raise the attainment of school-age students. It has been produced by the Centre for Transforming Access and Student Outcomes in Higher Education (TASO). TASO commenced this work in March 2022 - following the OfS announcement - in order to understand:

- What interventions HEPs are currently delivering to support improvements in attainment for school-aged students (both primary and secondary);
- The extent to which these interventions have been evaluated and the quality of this evaluation;
- How TASO and the HE sector could enhance the evidence-base in future to help reduce attainment gaps.

This report provides a brief outline of the literature (including UK-based and international studies) and sets out a typology of different interventions, assessing the strength and limitations of the evidence base. It is designed to collate what we currently know about what works to improve attainment among school-age students, current gaps in the evidence base (which are fairly substantial), and TASO's recommendations for building the evidence-base going forward. TASO acknowledges that - at the time this report was drafted - there was some uncertainty in the HE sector as to how providers should deliver and evaluate attainment-raising activities. It is important to note that the recommendations in this report are independent from the OfS, although we hope they will inform the future of evaluation in this area.

## 3. Methodology

This was a rapid evidence review, conducted in a relatively short time frame. As a consequence, our survey of the literature is not as comprehensive as a thorough systematic review and there is a possibility we have omitted some relevant studies. Our initial search produced a longlist of 42 pieces of literature. TASO views this as a "working document" and would encourage HEPs who have evaluated or are currently evaluating attainment-raising activities to share findings with us so that we can continue to develop a collective understanding of what works.

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<sup>2</sup>

<https://www.officeforstudents.org.uk/news-blog-and-events/press-and-media/universities-should-put-shoulder-to-the-wheel-to-help-improve-school-attainment/>

<sup>3</sup> <https://explore-education-statistics.service.gov.uk/find-statistics/key-stage-4-performance-revised>

TASO aims to help the sector produce and promote causal evidence ([type 3](#)) as this provides us with the best possible understanding of which activities and approaches drive better student outcomes. We have applied the OfS standards of evidence (see Table 2) to the literature identified in this review, classifying studies as narrative, empirical enquiry or causal to demonstrate the relative weight to place on findings.

*Table 2. OfS standards of evidence*

Type	Description	Evidence	Claims
Type 1: narrative	The study provides a narrative or a coherent theory of change to motivate its selection of activities in the context of a coherent strategy	Evidence of impact elsewhere and/or in the research literature on attainment-raising interventions	Coherent explanation of what is done and why  Claims are research-based
Type 2: empirical enquiry	The study collects data on impact and reports evidence that those receiving an intervention have better outcomes but does not establish any direct causal effect	Quantitative and/or qualitative evidence of a pre-/post-intervention change, or a difference compared with what might otherwise have happened	Can demonstrate that interventions are associated with positive results
Type 3: causal	The study methodology provides evidence of a causal effect of an intervention	Quantitative and/or qualitative evidence of a pre-/post-treatment impact on participants relative to an appropriate control or comparison group who did not take part in the intervention	Can demonstrate that the intervention causes improvement using an appropriate control or comparison group

### 3.1 Evidence review search criteria

The purpose of the evidence review was to identify studies where HEP's are directly involved in raising the academic attainment of school students. However, as there is relatively limited literature in this area, in some cases - where there is a clear link to the type of activities delivered by HEPs - we draw inferences from a wider evidence base e.g., of activities that are led by schools rather than HEPs themselves. Where this is the case it is clearly specified.

The search was conducted firstly through Google to identify relevant grey literature and then through Google Scholar and ERIC using targeted search terms. Search terms were developed in advance to focus characteristics of interest in terms of population, interventions, outcomes, study design and time frame. These included: 'raising/increasing attainment'; 'school student achievement'; 'university outreach/interventions'; 'school-university partnerships'; 'widening participation/access'; and 'social mobility'.

The criteria for this review included no limit for date of publication, but more recent publications from 2010 onwards were prioritised for relevance. International literature from

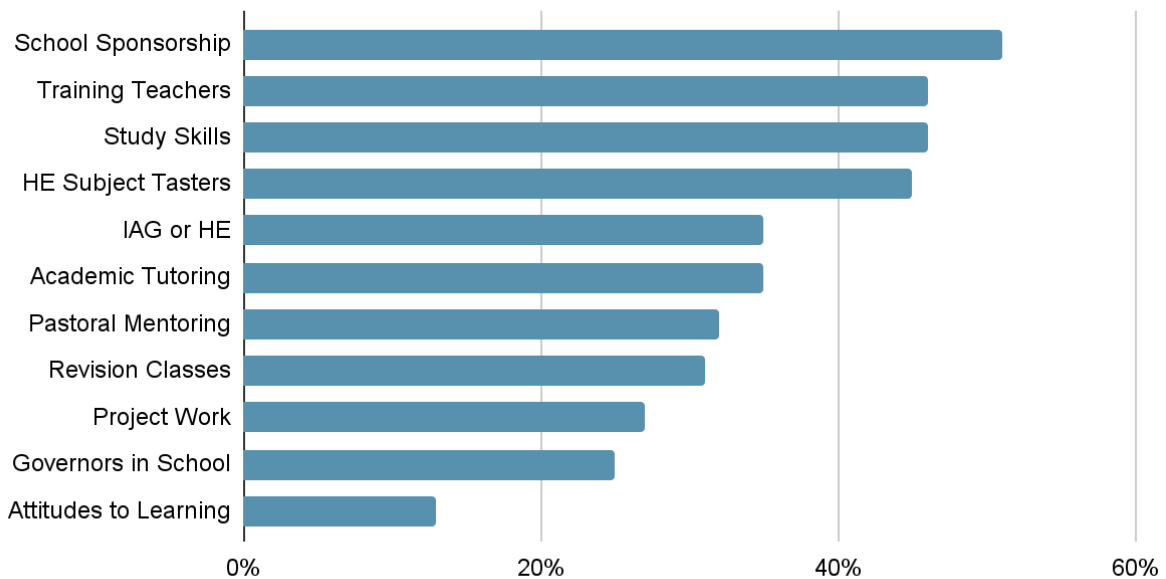
the US and Europe is included in this review, but more relevant UK-based studies are prioritised. Furthermore, the review includes meta-analyses, peer-reviewed articles, as well as grey literature from reputable sources. The review includes a range of interventions, including programmes that combine multiple activities. It also includes activities targeted at both primary and secondary school students.

After the sources were identified they were categorised according to: the year of publication; type of evidence; provenance; methodology; study aim; type of intervention; and strength of evidence. This allowed us to identify any trends across evidence sources, such as type of research, methodology used, research findings, and to identify any evidence gaps. Studies were then categorised to form a typology of different activities/interventions that are delivered by HEPs and thought to raise the attainment of school aged students.

### 3.2 Approach to developing the typology

Our typology draws on Anthony's (2019) analysis of the 2018/19 access agreements provided by HEPs to the Office for Fair Access (OFFA) which found 11 categories of attainment-raising outreach interventions (see Figure 1).

*Figure 1. Percentage of references to attainment-raising activities delivered by non-specialist HEPs in 2019 Access Agreements*



These activities were further categorised into four types, which include:

1. Activities focused on raising attainment as a byproduct of aspirations being raised;
2. Attainment-raising through development of soft skills;
3. Attainment-raising through teaching of the national curriculum;
4. Attainment-raising through school governance.

As the evidence that emerged from our rapid review of the literature aligned with these criteria, in this report we embed the literature from our search within the same categories. Figure 2 below illustrates the quality of the evidence base in each category, according to the OfS standards of evidence.

Figure 2. Standard of evidence for each category of intervention

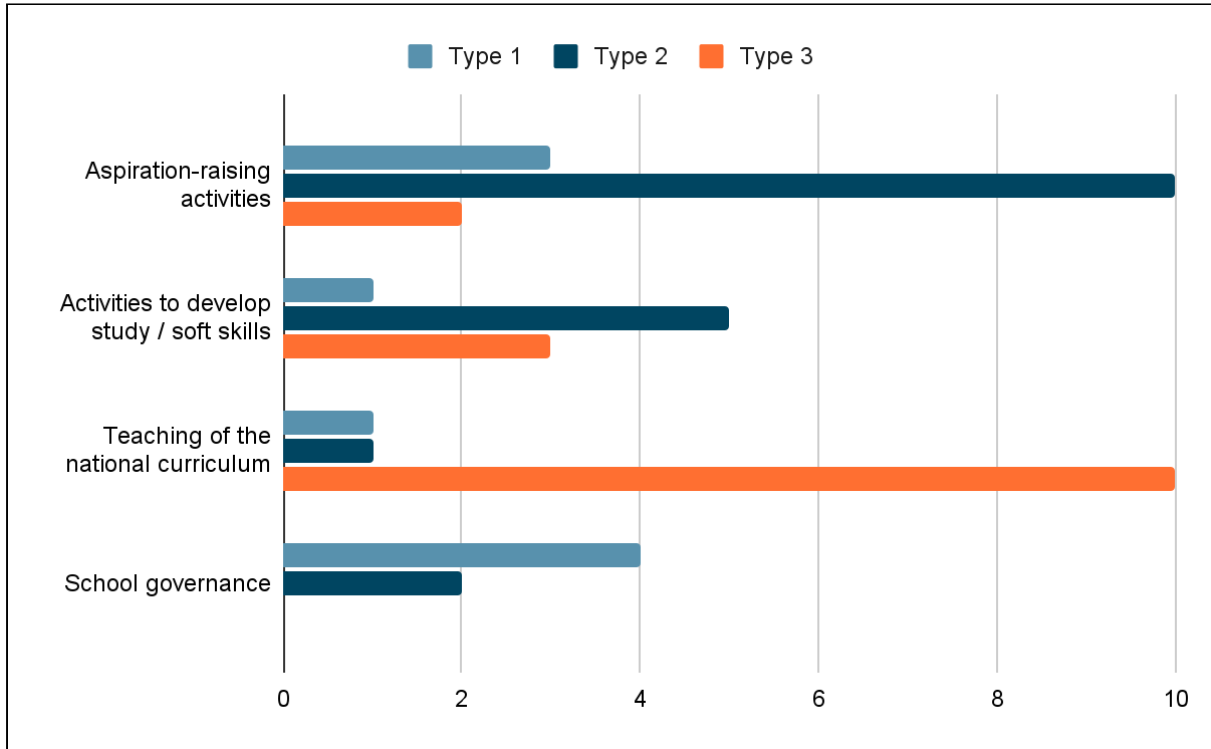


Table 3. Strength of evidence for each category of intervention

Category	Strength of evidence
Aspiration-raising activities	Weak evidence
Activities to develop study/soft skills	Emerging evidence
Teaching of the national curriculum	Strong evidence
School governance	Weak evidence

## 4. Summary of the literature

### 4.1 Attainment gaps and student outcomes

The literature demonstrates that a clear divergence in educational outcomes, linked to socio-economic status, emerges in children as young as three and becomes well established before they start school (Goodman et al., 2009), with children living in poverty having significantly lower cognitive test scores (Dickerson and Popli, 2016). These gaps become widest during secondary school and have the biggest impact on Higher Education (HE) progression at age 16, with Key Stage 4 attainment playing a significant role in determining



whether pupils progress to HE (Crawford, 2014). Attainment gaps also have negative effects on subsequent entry into professional employment (SMC, 2016).

This evidence suggests that levelling the playing field in terms of GCSE attainment is key to addressing persistent equality gaps in entry to HE. This indicates a role for HE outreach interventions to support improved attainment among disadvantaged students pre-16 to improve representation in HE.

To date, a wide-range of outcome measures have been used to assess the efficacy of attainment-raising activities. These include GCSE grades, attainment in core subjects such as maths and English, and intermediate measures such as self-reported confidence. For each study included in the typology we indicate the outcome measures used. However the range of measures used makes it difficult to directly compare findings across studies. There also remains a question as to whether HE providers should focus on supporting students who are closer to achieving certain grades or reaching the most disadvantaged (possibly at an earlier stage) in order to have the most impact on improving equality in HE, or because the most disadvantaged are the most urgent priority.

## 4.2 Attainment-raising Typology

### 4.2.1 Aspiration-raising activities

Most of the evaluation from the UK focuses on activities that seek to raise aspirations, with increased attainment may as a possible byproduct, i.e. students are motivated to do well academically because they feel they can access and succeed in HE.

Interventions that fall within this category typically include: open days, campus visits, summer schools, subject tasters, and pastoral mentoring. These activities generally aim to develop students' knowledge of HE; students' awareness of the subjects taught in HE and to build the confidence that they will succeed once there. They are commonly combined in a package (black box) for example in multi-intervention outreach and mentoring (MIOM) programmes.

In their 2018/19 access agreements, 35% of non-specialist HEPs referenced information, advice and guidance (IAG) or awareness raising, 45% referenced HE subject tasters, and 32% referenced pastoral mentoring, linking each of these activities to raising the attainment of participants (Anthony, 2019).

#### **Strength of evidence**

The strength of evidence for aspiration-raising activities is ['weak'](#). Overall, while outreach activities aimed at raising attainment as a byproduct of aspirations are frequently delivered by HEPs (Anthony, 2019), there is no evidence demonstrating a causal link between these interventions and increased attainment among school students (Cummings *et al.*, 2012; Gorard *et al.*, 2012).

Empirical studies have found that young people's aspirations for HE are high, regardless of background (Baker *et al.*, 2014), and that young people from disadvantaged backgrounds have higher aspiration levels than their actual HE participation and their expectations of progression to HE (Boxer *et al.*, 2011). Raising expectations may be more impactful than aspirations. For example, in two randomised studies, Destin and Oyserman (2009) found that students who were informed in-detail about need-based financial aid for HE reported higher expected grades than those who were instead reminded about the high cost of tuition. School-based initiatives designed to make academic goals more feasible may therefore be more effective for raising attainment than activities designed to raise aspirations (Boxer *et al.*, 2011). Although this idea needs further testing.

Some studies have reported positive effects of using student ambassadors to provide information, guidance and support to school pupils (Passy and Morris 2010, Ireland *et al.*, 2006), with university students acting as 'role models' (Sanders and Higham, 2012) and providing valuable information to school students (Gartland, 2013). Particularly when student ambassadors work as subject experts alongside pupils in a collaborative relationship, outreach can "challenge pupils' gendered, raced, and classed trajectories" within the subject (Gartland, 2012 p1). However, Gartland (2013) also cautions that the primary aim of student ambassador outreach is often to promote and market their own institutions and courses rather than to widen participation or raise attainment.

There is some evidence of improvements in attainment for summer schools and mentoring programmes that provide information and guidance to students (Hoare and Mann, 2011; Passy and Morris, 2010), as well as other types of support, but these studies have primarily looked at 'soft' outcomes, such as aspirations and confidence, rather than actual attainment.

In the UK, past and current initiatives that fall within this category include Aimhigher (Chilosi *et al.*, 2010; Doyle and Griffin, 2012), Upward Bound (Luebsen, 2020) and Uni Connect (Patel and Bowes, 2021). Although the evaluation of these programmes often cover multiple interventions together, which makes it difficult to isolate the effectiveness of specific interventions, there is some evidence of their positive impact on attainment.

Aimhigher, ran between 2004-11 and included activities such as career fairs, HE evenings, campus tours and HE subject tasters. The programme focused on 'increasing the number of young people who have the abilities and aspirations to benefit from HE' (HEFCE, 2004). Although Aimhigher was criticised for its lack of evaluation (Gorard *et al.*, 2006), there is some research that suggests that it had a positive effect on student attainment. Chilosi *et al.* (2010) conducted a multiple regression analysis using data from Aimhigher partnerships and found that the programme was positively associated with higher GCSE attainment and HE progression. The analysis estimates that participating in Aimhigher is associated with a 3.8 percentage point increase in the likelihood of achieving 5 A\*-C GCSE grades. A review study conducted by Doyle and Griffin (2012) notes that other studies have also found positive correlations between Aimhigher participation and pupil attainment, although a causal relationship has not been established.

A study of the Upward Bound (UB) programme delivered by London Metropolitan University also found positive effects on attainment (Luebsen, 2020). UB is originally a US-government initiative that started in the 1960s. It was first delivered in the UK by London Metropolitan in

2006 to raise the attainment and opportunities of disadvantaged students in Islington, London. The programme is led by student ambassadors, normally undergraduate students. It consists of a series of 29 face-to-face sessions run on Saturday morning at London Metropolitan University, as well as a residential trip in the summer term. The programme aims at providing an alternative learning environment to address the academic, social and cultural needs of the cohort. Evaluation of the programme involves a mixed methods methodology, combining qualitative data that includes questionnaires, case studies and interviews with quantitative data, comparing the GCSE results of participants with their peers at Islington schools. The analysis used 'Progress 8' scores, a measure that tracks pupils' academic progress throughout secondary school, and found that UB participants had higher Progress 8 scores than their peers in Islington. The qualitative data, such as interviews and questionnaires, also suggests that the programme was beneficial in terms of raising attainment.

Uni Connect involves 29 partnerships between universities, colleges and other local partners, focusing on local areas where HE progression is lower than average. The programme is currently in its third phase and will run till 2025. Although Uni Connect is primarily directed at increasing aspirations towards HE, some of the evaluation of interventions include attainment. An evaluation of Uni Connect reports the results of an empirical study that demonstrates a positive correlation between the summer schools and residential programmes and improvements in maths and English attainment as compared to predicted grades (Patel and Bowes, 2021).

The evaluation also found that different interventions were better at supporting different outcomes: workshops and masterclasses are effective for developing study skills and confidence; mentoring and summer schools support the development of self-efficacy and interpersonal skills; and campus visits raise awareness and knowledge of HE (Patel and Bowes, 2021). Although the evidence does not indicate how these intermediate outcomes shape attainment and which are most important. The most recent Uni Connect evaluation report (Harding and Bowes, 2022) suggests that activities including multi-intervention programmes, subject masterclasses / workshops and online mentoring all demonstrate positive associations with pupil attainment, although these studies are mostly classified as empirical, and so do not demonstrate causality.

A quasi-experimental study (Burgess *et al.*, 2021) of the Uni Connect multi-intervention programme found that greater engagement with the programme was associated with a higher likelihood of HE progression. However, the study did not look at attainment-raising specifically and does not demonstrate causality, as the participants' engagement with the programme was not random but determined by a combination of the learners' and schools' choices.

## **Summary**

Overall, evaluations of black-box aspiration-raising interventions suggest positive outcomes for pupil attainment. However, the bulk of the evidence is type 1 and type 2 and the design and focus of the programmes vary, with attainment being just one of the outcomes that the interventions target. Uni Connect is the only programme that has evaluated different activities separately, but this evaluation did not focus primarily on pupil attainment. TASO is

currently delivering 2 randomised controlled trials (RCTs) of summer schools (spanning 2021/22). In 2023/24 we will report on whether these trials demonstrate a causal link between summer schools and increased attainment.

Reference	Type of evidence	Methodology	Outcome measures
Anthony, 2019	Causal	Mixed-methods (including quasi-experimental designs)	Attainment-raising
Baker et al., 2014	Empirical	Regression analysis	Aspirations
Boxer et al., 2011	Empirical	Regression analysis	Educational aspirations and expectations
Burgess et al., 2021	Empirical	Regression analysis	UCAS acceptance
Chilosi <i>et al.</i> , 2010	Empirical	Regression analysis	Reading outcomes (acquisition, comprehension),
Cummings et al., 2012	Narrative	Evidence review	Attitudes (educational aspirations, locus of control, valuing of school)
Destin and Oyserman, 2009	Causal	RCTs	Academic aspirations and planned academic effort
Doyle and Griffin., 2012	Empirical	Evidence review	Application rates to HE, awareness of HE, aspirations, confidence, academic attainment, application rates to HE
Gartland, 2013	Narrative	Case study	Interest in STEM, aspirations, enrollment into HE and specific institutions
Harding and Bowes, 2022	Empirical	Evidence review	Intentions/likelihood to apply to HE, knowledge of

			HE, confidence, motivation and resilience
Hoare and Mann, 2011	Empirical	Case study	UCAS applications, HE registration
Ireland et al., 2006	Empirical	Evidence review	Attainment at Key Stage 5, young people's attitudes towards HE, destinations after 18, aspirations to progress into HE, satisfaction with their destinations, financial awareness
Luebsen, 2020	Empirical	Report	GCSE attainment, academic performance, feedback from participants and school staff members, personal, behavioural changes and accomplishments
Passy and Morris, 2010	Narrative	Evidence review	HE aspiration/awareness raising: widening participation in HE
Patel and Bowes, 2021	Empirical	Evidence review	Increased knowledge of HE, increased confidence revent to HE decisions, improvements in interpersonal skills and study skills, intentions/likelihood of applying to HE aged 18 or 19, increase in number of UC target learners who apply to HE/accept a place in HE
Sanders and Higham, 2012	Narrative	Literature review	Retention, success

## 4.2.2 Activities to develop soft / study skills

These interventions focus on raising attainment by helping students to develop skills needed to succeed in education, such as study skills, critical thinking, essay writing and metacognitive skills. Activities are designed to help students improve how they approach and / or think about learning, equipping and / or motivating them to achieve higher levels of attainment.

The Education Endowment Foundation promotes the use of interventions that focus on 'attitudes to learning' to improve the attainment of low-income pupils (EEF, 2018). However, only 13% of non-specialist HEPs referenced 'attitudes to learning' as part of their outreach, while 46% referenced 'study skills', i.e. how students approach learning rather than how they think about it (Anthony, 2019).

### Strength of evidence

The strength of evidence for activities to develop soft/study skills is ['emerging'](#). There is evidence that metacognitive learning strategies, which aim to improve the way students approach and think about studying, and more general study skills interventions contribute significantly to attainment. For example, Mannion and Mercer (2016) conducted a quasi-experimental study to analyse a whole-school intervention in the UK focused on meta-cognition. They found that this intervention led to a significant closing in the attainment gap between Year 9 Pupil Premium students and their peers compared to a matched control group. Furthermore, an empirical study of US university students using pre-and-post data found that those participating in an intervention aimed at increasing strategic learning, a component of metacognition centred around learning strategies, had higher GPA scores than their peers (Weinstein *et al.*, 2000).

Although not produced by HEPs delivering activities within schools, there is also academic evidence to suggest that interventions focused on raising the identity-based motivations of students can improve academic attainment. Identity-based motivation theory proposes that people interpret situations with whichever identities are on their minds at the time and prefer to act in ways that are consistent with these constructed identities (Oyserman *et al.*, 2007). In an intervention aimed at 13-14-year-old students, teachers raised the identity-based motivations of students through helping them form connections between school and their future success, teaching them to value obstacles and developing strategies to overcome them (Oyserman *et al.*, 2017). Research has also found positive relationships between other soft skills and attainment, such as having a 'growth mindset' (Gutman and Schoon, 2013; Good *et al.*, 2003) and academic self-efficacy (Schneider and Preckel, 2017).

### Summary

The impact of these types of interventions carried out by UK HEPs on pupil attainment has not been systematically evaluated. Interventions in this category focus on the development of a range of different skills which makes comparison difficult. Furthermore, although 'study skills' were referenced by almost half of non-specialist HEPs in their access agreements (Anthony, 2019), they are often combined with other interventions and thus their specific causal relationship to attainment is difficult to isolate.

While there is evidence supporting the benefits of interventions that focus on ‘attitudes to learning’, these are not widely conducted by HEPs despite being promoted as high impact and low cost by the EEF (2018). There may be scope for HEPs to expand their activities in this area, while also isolating these interventions from others for more comprehensive evaluation.

Reference	Type of evidence	Methodology	Outcome measures
Anthony, 2019	Causal	Mixed-methods including quasi-experimental design	Attainment-raising
Good et al., 2003	Causal	RCT	Standardised test performance
Gutman and Schoon, 2013	Empirical	Literature review	Academic outcomes, financial stability in adulthood, reduced crime, employment
Mannion and Mercer, 2016	Causal	Quasi-experimental design	Attainment
Oyserman et al., 2007	Empirical	Regression analysis	Health and academic outcomes
Oyserman et al., 2017	Narrative	Literature review	Attainment-raising, aspiration
Schneider and Preckel, 2017	Empirical	Systematic review of meta-analyses	Attainment-raising, achievement, self-efficacy, prior achievement and intelligence, conscientiousness, goal-directed use of learning strategies
Weinstein et al., 2000	Empirical	Pre-test post-test analysis	Self-regulation, academic achievement
Office for Students (OfS), 2022	Empirical	Mixed methods	Reading outcomes

### 4.2.3 Teaching of the national curriculum

This type of intervention relates to activities that focus on raising attainment through teaching of the national curriculum. This includes academic tutoring, revision or booster classes, and project work.

Tutoring interventions often focus on specific subjects important to the national curriculum, such as maths and English, and are delivered in small groups or in one-to-one sessions. 'Booster session' activities tend to be delivered over a shorter-time frame than academic tutoring and are often delivered by more selective HEPs to students already achieving well in order to help them achieve the higher grades required for selective HEPs.

'Project work' interventions focus on providing academic support for projects that are supra-curricula, such as the Extended Project Qualification (EPQ), a Level 3 course which is taken alongside A Levels and designed to extend and develop students' abilities beyond the A-level syllabus and prepare them university or their future career.

Of these types of interventions, tutoring (35%) is the most commonly cited by HEPs, followed by revision classes/booster sessions (31%) and project work (27%) (Anthony, 2019).

#### **Strength of evidence**

The strength of evidence for teaching of the national curriculum is '[strong](#)'. Academic tutoring activities are frequently cited by HEPs as the dominant type of intervention being delivered to raise the attainment of school students (Anthony, 2019). This type of tutoring is normally conducted by undergraduate student ambassadors, most of whom have little formal training, and would be categorised as cross-age non-professional peer tutoring. Studies on this type of tutoring in the UK have had mixed results. Torgerson and King (2002) found no impact when analysing four RCTs where adult non-professionals acted as tutors. However, these studies looked at cross-age non-professional tutoring more generally, rather than programmes run specifically by universities.

Gartland (2015) observes that successful relationships between university student ambassadors and pupils can emerge when ambassadors work collaboratively with school students, as equals. Thus, the design and nature of tutoring programmes will have a significant bearing on the positive impact that can be observed. The Education Endowment Foundation (EEF, 2014) provides advice on the optimum design for tutoring programmes and suggests that intensive one-to-one or small group tuition can be effective for attainment-raising.

Book and Stories is a targeted intervention led by the University of Bournemouth to improve the reading ability of year 6 pupils, as well as their confidence in and attitudes towards reading<sup>4</sup>. 10 weekly one-hour sessions are delivered across schools in local areas, focusing

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<https://www.bournemouth.ac.uk/news/2022-04-12/books-stories-programme-highlighted-office-student>



on pupils with a reading age that is a year lower than their actual age. The evaluation involved pre-and-post reading tests and surveys measuring students' confidence in and attitude towards reading. Evaluation from the 2019-20 cohort of 70 students found that 67% of pupils improved their reading age, with an average gain of 12 months, while 38% of pupils reported an improvement in reading age of 2 years or more (OfS, 2022)<sup>5</sup>. Pupils' comparison of their reading ability relative to their peers improved by 44%.

The evidence from international literature, particularly from the US and Europe, is much stronger in demonstrating a causal relationship between cross-age peer tutoring programmes and school student attainment. In the US, several meta-analyses and systematic reviews since the 1980s reported a positive impact on attainment. Sharpley and Sharpley's (1981) meta-analysis of 82 studies reported gains in reading and maths for students, as did Cohen *et al.* (1982) in their review of 65 randomised studies. More recent reviews and meta-analyses conducted in the US have also found a positive impact on student attainment when using university-student tutors, or other 'paraprofessional' tutors (Elbaum *et al.*, 2000; Leung *et al.*, 2005; Nickow *et al.*, 2020). For example, Nickow *et al.*'s (2020) RCT meta-analysis of tutoring interventions in the US delivered to pre-K-12 students (ages 3 to 16) found substantial positive impacts on learning outcomes, with an overall pooled effect size estimate of 0.37 SD. The study found that effects are stronger on average for tutoring programmes delivered by professionals and paraprofessionals. Interestingly, the study found that reading tutoring yielded higher effect sizes at earlier grades and maths tutoring at later grades. Similarly, other RCTs and meta-analyses have also found that structured reading tutoring delivered by university students has significant positive effects on the attainment of primary school students when compared to control groups (Lindo *et al.*, 2017; Elbaum *et al.*, 2000; Bloom, 1984).

There is also recent evidence from studies conducted in Europe that demonstrates the positive effects of university tutoring on pupil attainment. An RCT conducted by Resnjanskij *et al.* (2021) found that a structured tutoring programme had significant positive effects on the educational attainment and labour-market prospects of students from disadvantaged backgrounds, particularly those who lacked family support from other adults. For students from low-income backgrounds, the programme raised attainment in maths by 0.29 standard deviations. The study also observed that the qualitative factors of the mentor-mentee relationship mattered more for the effectiveness of the programme than the intensity of the sessions, further emphasising the importance of how tutoring and mentoring programmes are designed.

Similarly, an RCT conducted by Carlana and La Ferrara (2021) demonstrated the positive effects of a university tutoring programme on the educational attainment of Italian middle school students. The programme increased student attainment by 0.26 standard deviations on average compared to a control group, and was also found to have a positive impact on socio-emotional skills, aspirations and psychological well being. Once again, the programme was most effective for raising the attainment of students from a low socio-economic

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<https://www.officeforstudents.org.uk/advice-and-guidance/promoting-equal-opportunities/effective-practice/bournemouth-university-books-and-stories/>

background and, in the case of psychological well being, for children from an immigrant background.

### Summary

Overall, international literature from the US and Europe points towards a strong link between academic tutoring and attainment, particularly demonstrating the benefits of cross-age tutoring delivered by university students. However, the literature also suggests that programmes should be designed to foster collaborative relationships between tutors and tutees (Gartland, 2015), and that tutoring can be most effective when targeted at disadvantaged students, particularly those who lack family support from adults. The evidence from studies conducted in the UK is more mixed and limited, and thus future research will need to look specifically into evaluating university-led tutoring programmes and focus on how these programmes are designed and which students are targeted.

Reference	Type of evidence	Methodology	Outcome measures
Bloom, 1984	Causal	RCT	Attainment-raising, time on task in the classroom, time on task in the classroom
Carlana and La Ferrara, 2021	Causal	RCT	Academic performance, socio-emotional skills, aspirations, psychological wellbeing
Cohen et al., 1982	Causal	Review of RCTs	Academic performance, attitude towards academic material, self-esteem
EEF, 2014	Empirical	Evidence synthesis	Reading abilities
Elbaum et al., 2000	Causal	Meta analysis	Reading comprehension, spelling, reading
Gartland, 2015	Narrative	Ethnography and discourse analysis	Qualitative insights on the benefits of the programme
Leung et al., 2005	Causal	Meta analysis	Attainment-raising
Lindo et al., 2017	Causal	RCT	Reading outcomes (letter-word identification, decoding and

			passage comprehension)
Nickow et al., 2020	Causal	Meta analysis of RCTs	Academic learning outcomes Attainment-raising
Resnjanskij et al., 2021	Causal	RCT	Math grades, patience/social skills, labour-market orientation
Sharpley and Sharpley, 1981	Causal	Meta analysis	Attainment-raising, cognitive capacities
Torgerson and King, 2002	Causal	Systematic review of RCTs	Reading outcomes

#### 4.2.4 School governance

This section includes interventions by HEPs that focus on school governance and teacher training, including:

- School-university partnerships: mutually beneficial collaborations between institutes of higher education and local schools (including university sponsorship of schools),
- Professional development opportunities for teachers, advanced training that addresses the need for professional knowledge in the classroom.
- Placement of university staff as governors of schools.

‘School sponsorship’ was the most frequently referenced activity, with 51% of non-specialist HEPs citing this intervention in their access agreements, while 42% cited ‘teacher training’ and 23% cited ‘governors in schools’.

#### Strength of evidence

The strength of evidence for school government interventions is [‘weak’](#). There are various type 1 and 2 studies that suggest benefits to school-university partnerships, sponsored schools and teacher training such as raised aspirations, improved attainment, increased teacher ability and retention, and improved school success. However, the research does not demonstrate a causal link with attainment.

In 2014, the Higher Education Funding Council for England (HEFCE) conducted an initial analysis of the trends in pupil attainment and HE progression from secondary schools, focusing on academies sponsored by HEPs. The analysis found that there had been a significant increase in pupil attainment at Key Stage 4 across all sponsored academies that were included in the analysis (Universities UK, 2017). From 2005 to 2013, the proportion of pupils achieving 5 A\*-C GCSEs and equivalent more than doubled in sponsored academies. The analysis found that the improvement was driven mostly by achievement in vocational qualifications, with some improvement in HE progression as well. When looking at just GCSEs, there was a slight increase in attainment. However, it should be noted that there are no counterfactuals involved in the measurement of these effects.

Universities UK (2017) recommends that HEPs and schools take a flexible approach to partnerships and that HEPs should tailor their interventions to recognise the local context and resources of the schools they work with. Several case studies indicate that some school-university partnerships combine a number of the interventions touched upon in the previous categories to support pupil attainment and aspirations. For example, Brunel University has run the 'Urban Scholars' programme since 2001, focusing on free-school meals students in the London area. The intervention involves academic tutoring, teaching critical thinking skills, and raising aspirations. The impact of the intervention is described as raising the attainment of 'underperforming' pupils and enabling them to surpass their predicted grades. However, the evaluation methodology of this intervention and the other case studies in the report are not detailed, and thus the evidence falls into the type 1 - narrative evaluation - category. The 2016 Social Mobility Report (Universities UK, 2016) also referenced the 2014 HEFCE analysis when mentioning the benefits of school-university partnerships on pupil attainment, but recommended that there needs to be a more systematic review of these activities and their impact on attainment.

There is limited evidence from the UK on the impact of university-sponsored schools on pupil attainment. One key study analyses outcomes for the first two student cohorts of the King's College London Mathematics School (Golding, 2019). The study uses self-reporting surveys and interviews with former students who report that the school had succeeded in its mission of enhancing equitable access to quantitative-focused courses in HE. In terms of attainment, the first cohort achieved an A-level average point score per entry of 272.9, placing KCL Maths School as the top-performing state school in the country. The following classes also achieved very strong results. It is important to note that entry to KCL Maths School is selective and thus applicants would already have been high-achieving, particularly in their maths grades. However, the school's analysis of attainment data also suggests the high 'value-added' impact of the school, with each student on average outperforming their GCSE predictions by one whole grade, placing them as one of the best state schools in terms of value-added. Golding's study (2019) suggests that specialist schools sponsored by university can have a positive value-added impact on pupil attainment. However, the study does not demonstrate a causal relationship, and so can only be considered type 2.

There is some evidence from the US on the positive impact that school-university partnerships can have on attainment. Starla *et al.* (2013) analysed a partnership between the University of Indiana Purdue and the nearby George Washington Community High School. The programme involves a variety of activities, such as tutoring and mentoring delivered by university students, as well as campus visits and training courses provided to school teachers over the summer. Although the study does not contain specific data on attainment, it notes that the high school graduation rate increased from 47% in 2009 to 77% in 2011 and 100% of graduates are accepted into postsecondary education (in an area where only 7.4% of residents over 25 hold a postsecondary degree).

A study conducted by Ward *et al.* (2013) also found significant positive effects on a similar partnership between a university and community schools. This study looked at the Yale University Gear Up Partnership Project, a government-backed initiative. The Gear Up Programme delivered by Yale University School of Medicine involves a combination of additional training provided to school staff, academic enrichment support programmes, and

involving parents in the university application process. The programme is evaluated using a longitudinal study that tracks factors such as attainment, aspirations and motivation. A multiple regression analysis found a statistically significant effect of higher dosage of the programme being associated with a higher 10th grade GPA (grade point average) after controlling for 9th grade GPA. The analysis suggests that 20 hours of the programme is associated with a one point increase in grade level (e.g., from a 'B' to a 'B+').

### Summary

Overall, there are several case studies and articles that suggest the benefits of activities that involve school-university partnerships and sponsored schools. However, the bulk of this evidence, particularly in the UK, is type 1 and 2, and does not demonstrate a causal link between the interventions and student attainment. The HEFCE's analysis suggests that these partnerships in the UK do have positive benefits in terms of attainment, but they often involve a range of activities and interventions and so it is difficult to isolate which specific activities are most effective.

Reference	Type of evidence	Methodology	Outcome measures
Golding, 2019	Narrative	Survey analysis	Qualitative insights related to alumni academic trajectories
Starla et al., 2013	Narrative	Case studies	Qualitative insights into case studies
Universities UK, 2016	Narrative	Evidence review	Degree attainment, labour market outcomes, access to postgraduate level
Universities UK, 2017	Empirical	Case review	Academic attainment
Ward et al., 2013	Empirical	Regression analysis of longitudinal study	High school graduation rates

## 4. Discussion of evidence

The current quality of the evidence base makes it difficult to draw firm conclusions about what interventions HEPs might use to improve student attainment and how these should be implemented.

The strongest evidence relates to interventions that are designed to teach the national curriculum. However, all of the studies that indicate that cross-age peer tutoring can be effective in raising attainment come from international studies. More evidence is needed for the UK context. In addition, the literature suggests that the efficacy of curriculum focused interventions is contingent on how they are designed. For example, Gartland (2013) demonstrates the importance of fostering collaborative relationships between tutors and

students rather than top-down relationships. Research also suggests that academic tutoring programmes are most effective when they target disadvantaged students who lack family support at home (Resnjanskij *et al.*, 2021; Carlana and La Ferrara, 2021). Future curriculum focused interventions in the UK should seek to operationalise these findings and continue to learn what works through robust type 3 evaluation methods.

Aspiration-raising and school governance interventions show “evidence of promise” in relation to raising attainment but there is limited evidence of a causal link between these activities and improved student attainment. This is largely due to; an emphasis on type 1 or 2 evaluation designs which lack a counterfactual; challenges of isolating the effects of specific activities within wider programmes; and too great a focus on intermediate outcome measures. In the recommendations below we set out how TASO can support the HE sector to address these challenges.

Interventions that support the development of study or soft skills are commonly cited by HEPs as approaches used to improve attainment. This type of intervention ranks third in popularity in the analysis of access agreements (Anthony, 2019). However there is little evidence from the literature of evaluations that focus on HEP delivery in this area. There is stronger evidence from soft or study skill interventions that have been implemented by other delivery partners such as schools. This is therefore one area where HEPs might expand their outreach activities, building on the evidence base of others, in parallel to delivering more robust evaluation. For example, interventions that focus on attitudes to learning have been described as low cost and high impact by the Education Endowment Foundation (EEF 2018), yet only 13% of HEPs referenced conducting ‘attitudes to learning’ interventions in their access agreements (Anthony, 2019). One challenge is the range of intermediate outcomes that interventions are intended to impact e.g., metacognition or growth mindset. However, this may be a productive area for HEP attainment-raising interventions to target in the future.

## 5. Recommendations

This review reveals some of the challenges in evaluating the impact of HEP outreach activities on student attainment. These are summarised below, alongside recommendations of how these challenges might be overcome.

- **Few interventions currently set out how they are expected to facilitate improvements in attainment.** We therefore recommend that HEPs develop [theories of change](#) for any planned attainment-raising activities. Theories of change should clearly set out: the challenge an intervention or set of interventions is trying to address; the outcomes expected to emerge as a result; activities that will support these outcomes. We recommend that HEPs make theories of change public to stimulate a collective discussion and learning about how attainment-raising interventions are expected to work.
- **Many studies do not demonstrate a causal link between interventions and higher attainment.** There is a clear need for more [type 3](#) research in this area, specifically that which links to attainment data. Attainment gaps among secondary school students are a persistent challenge, which TASO argues can only be

addressed by learning and scaling practices that facilitate significant change. We will be publishing a framework to support the evaluation of black box - Multi-Intervention Outreach and Mentoring (MIOM) - interventions in early 2023.

- **There is a lack of consistency in the outcome measures used in studies which inhibit cross-study comparisons.** Whilst we advocate for studies to use attainment data to assess impact, we acknowledge that the lag time between an intervention and attainment outcomes poses a challenge. As many HE outreach interventions are already focused on improving psycho-social areas, or cognitive attributes, such as academic self-efficacy, cognitive study strategies and motivation. TASO is currently developing [survey scales](#) to help providers measure the relationship between these psycho-social constructs and attainment. We would encourage HEPs to adopt these measures when published, which we expect will be towards the end of 2022.
- **There should be more collective learning across the HE sector on what works to improve attainment.** As mentioned previously, TASO views this report as a working document and would encourage HEPs to share examples of previous or current evaluations on attainment-raising activities so that we can collectively build our understanding of what works.

Working Paper

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