POTENTIAL FOR SUCCESS

Fulfilling the promise of highly able students in secondary schools

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THE SUTTON TRUST

Contents

Foreword

It is now widely recognised that we are experiencing an extended crisis in social mobility. Those from privileged backgrounds are over-represented in the country's top professions and most prestigious universities. Many of these disparities which have life-long consequences emerge in school.

For 20 years, the Sutton Trust has worked to improve opportunities for young people, particularly those with high potential from low and moderate income backgrounds. If we are to ensure the top jobs and educational establishments are more representative of the society around us, we need to stop the waste of talent that occurs at these early stages of our education system.

As today's report demonstrates, too many talented young people from less well-off backgrounds gradually fall behind during their school career, as the barriers they face take a toll. It is therefore essential that we address this wasted talent.

This is why today's report is crucial, examining the barriers faced by those of high potential, and indicating how to make sure the school system helps to fulfil that promise. While some schools are doing this very well, we need to have a more consistent approach across the board. There are lots of things that schools can do to help better identify and support their talented pupils. But what is clear is that we need more evidence.

In order to do these pupils justice, we need to use the best available evidence on what works. The Education Endowment Foundation has made great strides in this area. But we also welcome the Department for Education's recent announcement of the 'Future Talent Fund', which specifically aims to find out more about what helps this particular group.

The potential benefits of this fund are very significant in terms of widening access to the best universities and diversifying the talent pool of Britain's top professions. If we want to improve social mobility, we need to start harnessing our best talent, from all backgrounds.

I am grateful to the Sutton Trust team for this important new research.

Sir Peter Lampl
Founder of the Sutton Trust and Chairman of the Education Endowment Foundation

Executive summary

- Highly able students are defined in this report as students with high attainment, but also those with the potential for high attainment. Harnessing the potential of this group is an important goal for the education system. In England, since the previous 'gifted and talented' programme ended in 2010, there has been no national programme for the highly able. However, many schools, charities and other organisations do continue to run programmes for this group.

- Pupils from less well-off homes who have shown promise early in their school career are both a vulnerable and extremely important group for social mobility. Those from lower socioeconomic groups are consistently under-represented in the most selective universities and in top professions across all sectors. But promising young people from such a background are at most danger of falling behind during their school years. Ensuring that those from disadvantaged backgrounds fulfil their promise in school is crucial for increasing social mobility and opening up the top echelons of British society.

- Students from disadvantaged backgrounds are less likely to be in the top 10% for attainment in English and maths at the end of primary school - referred to in this report as high attainers. Disadvantaged students are three times less likely to be in this high attainment group than their more advantaged peers: only 4% of disadvantaged students have high attainment at Key Stage 2, compared to 13% of non-disadvantaged pupils.

- Furthermore, even for those disadvantaged pupils who do perform strongly in primary school, they are much more likely to fall behind at secondary school, compared to other high attaining students, across a range of measures. While high attainers overall make about an average level of progress between Key Stage 2 and Key Stage 4 (a Progress 8 score of 0.02, where the national average is zero), those from disadvantaged backgrounds fall substantially behind, with a negative Progress 8 score of -0.32.

- They are also less likely to achieve the top grades that open doors to universities and employers: while 72% of non-disadvantaged high attainers achieve 5 A*-A grades or more at GCSE, only 52% of disadvantaged high attainers do. If high attaining disadvantaged students performed as well as high attaining students overall, an additional 1,000 disadvantaged students would achieve at least 5A*-A at GCSE each year.

- High attainers from disadvantaged backgrounds who are white have the lowest level of attainment at GCSE compared to their peers in any other ethnic group. Only 45% of disadvantaged white students with high prior attainment gain 5A*-A at GCSE, compared to 63% of black students and 67% of Asian students from similar backgrounds.

- Students with high attainment do better at GCSE in schools with lower proportions of students on free school meals, schools in London, in converter academies, and in schools with higher numbers of other previously high attaining students.

- Most schools have very small numbers of previously high attaining students, the typical comprehensive secondary school has just 11 high attaining students per year, with 43% of schools having 10 or fewer, and only one such student from a disadvantaged background.

- Disadvantaged students make up a much smaller proportion in grammar schools compared to those in comprehensives, with disadvantaged high attainers only half as likely as high attainers overall to enter a grammar. In grammar schools, only 1 in 17 of all high attainers are from disadvantaged backgrounds, compared to 1 in 8 high attainers in comprehensive schools.

- Maximising the potential of highly able young people poses three main challenges in schools: identifying the right students, offering them the right programmes and interventions, and managing the process organisationally in a sustainable way. These issues are explored in this report through existing literature and through case studies of good practice in schools that do particularly well for these students.

- Identifying students who have the potential for high attainment in schools is extremely challenging. Students with potential from disadvantaged backgrounds are of particular concern, as these students are both more likely to be missed when identifying the highly able, and are more likely to fall behind and struggle to fulfil their potential.

- There is currently little evidence on how best to support highly able students, and even less on how to support students who are capable of high attainment who are from disadvantaged backgrounds. Mentoring and tutoring programmes, and accelerated learning, are both interventions which are likely to benefit the highly able. However, more research is needed to evaluate interventions for these students.

- While highly able students from certain backgrounds, in certain parts of the country, and attending certain types of schools face substantial barriers, what schools actually do for such students can be crucial for success. There are many schools who perform consistently well for their highly able students from disadvantaged backgrounds.

- As most schools have very few highly able students per year, any interventions for this group need to be able to be put in place for only a very small number of students. Schools with more highly able students in their intake tend to score better at GCSE, so information sharing across schools is crucial to spreading good practice and ensuring that all young people's potential can be fulfilled.

Recommendations

1) **We urgently need stronger evidence and evaluation of activity to support the highly able**. We welcome the recent announcement of the 'Future Talent Fund' (aimed to help raise the attainment of highly able pupils from disadvantaged backgrounds). The government should now ensure that the fund is properly delivered, trials are robustly evaluated, and that findings from the work are implemented in schools as part of a national programme.

2) **Improving attainment of highly able pupils, specifically those from disadvantaged backgrounds, should be monitored and incentivised.** Ofsted inspections should as a matter of course assess a school's provision for its disadvantaged highly able students, and GCSE attainment scores for disadvantaged pupils with high prior attainment should be published as part of school league tables.

3) **Increasing access to high quality teaching is essential to allowing those with high potential to flourish.** Teachers with more experience and subject specialism should be incentivised, for example by offering more money and more time out of the classroom, by government, or through multi-academy trusts, to teach in more disadvantaged schools and geographical social mobility cold spots.

4) **Support for the highly able should be as inclusive as possible. Highly able students can be difficult to identify.** To ensure that all such students (especially those from disadvantaged backgrounds) have access to work that will fit their needs, programmes should be made widely available where possible, and any grouping or targeting should be flexible and regularly reassessed.

5) **Students of all backgrounds should have access to high quality extra-curricular activities in order to boost essential life skills that facilitate academic attainment and future success.** The government should introduce a means-tested voucher system, or encourage schools to do so, in order for lower income families to access additional support and enrichment, including extra-curricular activities and one-to-one tuition. Development of essential life skills should be incentivised and rewarded in Ofsted inspection criteria.

Recommendations for best practice in secondary schools

Identifying highly able students

1) Despite the problems with identification that is correct and consistent, identifying highly able students will still sometimes be required, in order to track the progress of the group, or enable additional support for those who have previously achieved highly but are falling behind. Highly able disadvantaged pupils in particular should be monitored to ensure they have access to additional, targeted support if they are not making expected progress.

2) Both teacher assessment and testing have the potential to miss students. However, testing is likely to have fewer issues than identification by teachers, as it easier to make the process transparent. Assessment should be ongoing, starting when students are in primary school, and continuing throughout their time in education.

3) When tests are used, all students should be entered and students should be given in class preparation to limit the benefit of any additional tutoring outside of class. Where possible and subject appropriate, tests should not focus heavily on prior knowledge or specific cultural references, which can unfairly advantage students from better-off backgrounds. The test scores of disadvantaged students should be considered within the context of their background, and lower thresholds used when identifying students from this group.

Staff responsibility and organisation

4) Schools should consider designating a team of teachers as highly able coordinators, a group of staff with collective responsibility for implementing programmes and practices for the highly able.

5) The highly able team should ensure all staff receive training on how best to cater for this group, and coordinate the teaching of this group across the school. Coordinators should also ensure that best practice is shared both within and between schools, and draw on research evidence of what works.

6) Pupil premium funding should be used to support highly able disadvantaged students, to ensure they have access to activities and programmes tailored to their particular needs. Funding should also be used for extra tutoring if they begin to fall behind.

Interventions

7) Structured mentoring and tutoring programmes have been found to be beneficial for highly able students. Such programmes could be run in collaboration with local universities, to allow students to access advice and support. If partnerships are not possible, schools could instead run a mentoring programme between older and younger students within their school.

8) The use of differentiation and accelerated learning in the classroom, which can include giving highly able students more challenging tasks while they work alongside students of mixed

abilities, is also known to benefit highly able students. While those from low income backgrounds may not benefit as fully from this approach than their more advantaged peers, the risks to the attainment of these pupils are likely to be lower than the use of setting.

9) Due to the difficulties in identifying highly able students, wherever possible, interventions to benefit the highly able should be available to all students. All classes should have built-in stretching activities, and while certain extra-curricular activities may be particularly promoted to highly able students, where possible they should remain open for all students to attend.

10) Setting should be used with caution, as it can harm the attainment of students in lower sets. Additionally, due to the difficulties in identifying highly able disadvantaged students, such students are less likely to end up in top sets, and so more likely to be harmed by the practice. If setting is used, sets should be fluid, with regular opportunities for students to move between different sets.

11) Interventions should where possible also engage the families and communities of the students involved. For those from disadvantaged backgrounds particularly, support from their family and wider community can be vital in ensuring their progression and attainment.

1. Introduction

The UK has a considerable attainment gap between students from the most and the least advantaged backgrounds. This gap opens up in the early years, with disadvantaged pupils already over four months behind their more advantaged peers by the time they start at primary school. The gap then continues to widen as students progress through education, and is over 19 months by the end of secondary school.[1] The attainment gap impacts students across the spectrum of achievement and potential. Both students from disadvantaged backgrounds who are capable of high attainment, and those who are less able academically, end up with lower levels of attainment than their equally able but more advantaged peers.

This report looks specifically at pupils who are capable of high attainment, referred to here as 'highly able', but who are also known by a variety of other terms including 'more able', 'gifted and talented' and 'very able'. The terms by which this group of students are referred to can be highly contentious, and there is no term which is universally accepted or understood. Here, highly able is used to refer to students who have the potential for high attainment, regardless of whether they have previously attained highly. This contrasts with the term high attainer, also used in this report, which refers to students who are highly able and have shown high levels of attainment. Having a separate term by which to refer to the highly able is of particular importance when discussing students from disadvantaged backgrounds, as many of them will have high potential which has not yet translated into high attainment.

Examining how well highly able students from disadvantaged backgrounds perform academically is vital when trying to understand the inequalities in outcomes for these students further down the line, including their under-representation at leading universities,[2] and in the top professions.[3] Many of these disparities formally appear with a student's attainment at GCSE, and then continue throughout A-levels, access to university and beyond. While universities and employers have their own parts to play in promoting social mobility, ensuring that highly able students from disadvantaged backgrounds fulfil their potential throughout their time at school is a crucial part of the effort to reduce inequalities in educational and professional outcomes by socioeconomic background.

In 2015, the Sutton Trust's Missing Talent report found that 15% of previously high attaining pupils failed to achieve in the top 25% at GCSE, and that this group of 'missing talent' is more likely to include students from disadvantaged backgrounds. Indeed, high attaining pupils who are also disadvantaged (in this case, those eligible for pupil premium funding) were found to achieve on average half a grade less than other similar pupils.[4] Additionally, Ofsted has previously reported that only 20% of pupils who achieved at least level 5 in English and maths, the grade generally considered as high attainment at Key Stage 2 (KS2), who were also eligible for free school meals (FSM) go on to achieve A or A* in these subjects at GCSE. This is compared to 34% of the same pupils not eligible for FSM doing so.[5] Internationally, the gap between students with previous high attainment from the most and the least advantaged backgrounds in reading, writing and science skills is larger in England than in several other developed countries, including Finland, Canada and Norway.[6] England has not had a national programme for the highly able since the previous 'gifted and talented' programme was brought to an end in 2010.

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[1] Education Endowment Foundation. (2018) The Attainment Gap.
[2] Cullinane, C. & Montacute, R. (2017) Fairer Fees. Reforming student finance to increase fairness and widen access. The Sutton Trust.
[3] Kirby, P. (2016) Leading People - The educational backgrounds of the UK professional elite. The Sutton Trust.
[4] Allen, R. (2015) Missing Talent. The Sutton Trust.
[5] Ofsted. (2015) The most able students: an update on progress since June 2013 - GOV.UK.
[6] Jerrim, J. (2017) Global Gaps. The Sutton Trust

Very little is currently known as to how to best support and stretch the highly able, especially those who are from lower socioeconomic backgrounds. This report begins with a review of current research, focusing on students at secondary school level. The second section of this report then goes on to characterise high attainers in England who were in the top 10% nationally at KS2, examining who they are and in which schools they took their GCSEs. However, it is important to remember that even at this relatively early stage, many able students from disadvantaged backgrounds will have already fallen behind, and therefore are not included in this analysis. The GCSE results of this group of high attainers is also examined and broken down by a variety of factors, including their ethnicity and the types of schools that they attend. Finally, this report features a series of case study schools. These are schools in which previously high attaining students have consistently had above average results at GCSE. The policies and practices of these schools are outlined, to give a representative view of best practice for the highly able.

2. Review of existing research

The following section summarises the existing research on how best to identify and support the highly able, with a specific focus on highly able students from disadvantaged backgrounds. A considerable amount of research has been carried out on how best to identify students, and particularly on the limits of identification. However, less research is available on how to then go on to support highly able students, either inside or outside of the classroom.

2.1 Identifying highly able students

Many programmes or interventions are designed to benefit highly able students specifically. However, correctly identifying this group of students can be difficult, and can be particularly challenging when assessing students from lower-income backgrounds. Major issues include when to identify students, whether testing can identify students accurately, and what role teachers should have in the identification process. Fundamentally, any method used to identify the highly able requires the assessor to decide on a definition of high potential or ability against which to assess. But such a definition is by no means universally accepted, and there is an ongoing debate amongst academics regarding the extent to which either intelligence, or potential, can accurately be measured or determined by tests or other assessments.[7]

2.1.1 The UK's previous gifted and talented initiatives

In the UK until 2010, several initiatives focused on 'gifted and talented' pupils, including the National Programme for Gifted and Talented Education, later rebranded as Young, Gifted and Talented. The government's definition of 'gifted and talented' was as follows: "gifted and talented describes children and young people with an ability to develop to a level significantly ahead of their year group (or with the potential to develop these abilities): gifted learners are those who have abilities in one or more academic subjects, like maths and English; talented learners are those who have practical skills in areas like sport, music, design, or creative and performing arts." Pupils identified as gifted and talented could benefit from a range of interventions in their schools, including streaming, accelerated learning, master classes (specialist classes on a subject, normally delivered by an expert in the field) and extra school trips.

Schools were given guidance that students should be identified as gifted and talented if they were in the top 5% nationally (based on their KS2 scores at the end of primary school); were gifted relative to peers in their year group and school/college; were talented at non-academic subjects such as arts or sport; or had high potential even if they had not yet translated that potential into high achievement.[8] However, while some schools, particularly in urban areas, introduced successful programmes, the percentage of students identified as gifted and talented ranged from 0% of pupils in some schools to 100% in others. Some teachers who did not agree with the programme had even refused to identify any pupils as gifted and talented. Additionally, only a weak link was found between students identified as gifted and talented for the programme and those who went on to attend selective universities. Previous research by the Sutton Trust found confusion among teachers as to what the definition meant, and that the percentage of gifted and talented pupils in a school had very little relation to how pupils in that school performed in national tests. The work also found that pupils from low income backgrounds were much less likely to

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[7] Cross, J. R. & Dockery, D. (2014) Identification of Low-Income Gifted Learners: A Review of Recent Research.
[8] Department for Children Schools and Families. (2008) Identifying gifted and talented learners - getting started.

be classified as gifted and talented.[9] The scheme was abandoned by the Coalition Government in 2010, and has not since been replaced by another programme for highly able students in England. However, some schools do still run their own gifted and talented programmes, a legacy of the previous initiative.

The broad definition of highly able students in the government's previous programme caused the initiative to have a mixed impact. On one hand, the programme allowed for talent to be identified in a range of subject areas, and the flexibility of the approach is likely to have meant that in some cases, students who would have missed out on interventions for the highly able based on, for example, test scores alone, were able to benefit from the programme and associated interventions. However, the definition of highly able in this case was so broad that teachers often did not understand it, and different teachers applied different meanings to the same criteria. This resulted in inconsistency, and reduced teacher confidence in the scheme. Any definition of the highly able needs to be understandable and supported by teachers, or else is unlikely to be implemented well on the ground in schools. The previous gifted and talented programme illustrated what happens when teachers do not understand or have confidence in a scheme. However, the fact that many schools have continued their own gifted and talented programmes clearly demonstrates that there remains an appetite for ongoing programmes to support the highly able.

Highly able programmes in other UK nations

Wales – Wales is the only nation in the UK with a nationwide programme for the highly able; referred to by the Welsh government as 'more able learners'. The Seren Network is comprised of 11 regional hubs across Wales, which support highly able students between the ages of 16 and 18. Students in the network are provided with subject specific workshops alongside other highly able students, as well as advice and support with university applications. Students are selected in a process which is designed and coordinated by each local hub, often based on their GCSE results. From September 2018, the network is being extended to target younger pupils, at the stage before they take their GCSEs.

For disadvantaged pupils specifically, the Welsh government provides schools with Pupil Development Grants (PDG) to support students from disadvantaged backgrounds (similar to the pupil premium in England). Recently, evidence given to the Children, Young People and Education Committee in the Welsh Assembly warned that PDG funding is not being sufficiently targeted at disadvantaged pupils who are highly able, and is often instead being used to raise low attainment across the school. The committee recommended that PDG guidance is strengthened to ensure the funding is used to support all eligible students, including those who are highly able.[10]

Scotland –The Scottish Government partly funds the Scottish Network for Able Pupils (SNAP), which offers support and advice to schools, teachers and parents on the highly able, though publications, staff development and national conferences. Support for highly able students is enshrined in Scottish law in the Additional Support for Learning Act, 2004. However, a 2014 SNAP report commissioned by the Scottish government found that while parts of Scotland do have good provision for the highly able, provision is variable across the country.[11]

Northern Ireland – In Northern Ireland, the terms 'gifted and talented' and 'exceptionally able' are used to describe the highly able. The Council for the Curriculum, Examinations and Assessments (CCEA) in Northern Ireland provides non-statutory guidance for teachers on how best to support this group of students. This guidance includes the use of differentiation in the classroom, consideration of early exam entry, and specific monitoring of the progress of highly able students.

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[9] Smithers, A. & Robinson, P. (2012) Educating the Highly Able. The Sutton Trust.
[10] Children Young People and Education Committee. (2018) National Assembly for Wales. On the Money? Targeted funding to improve educational outcomes.
[11] Scottish Network for Able Pupils. (2014) We Count Too: Highly Able Pupils in Scottish Schools.

2.1.2 Timing of identification

The point at which students are identified is an important consideration for any intervention aimed at the highly able. Many programmes, including the previous gifted and talented programme, identify students at the start of secondary school or later. However, as previously discussed, the attainment gap between advantaged and disadvantaged pupils is already present when students begin at primary school. The performance of highly able students from the most deprived backgrounds is also worse than lower-achieving students from the least deprived backgrounds by Key Stage 4 (KS4 - or GCSEs), with lower-achieving richer students catching up with highly able deprived students between KS2 and KS4.[12] Secondary schools should take the attainment gap into account when identifying highly able students on entry to year 7, and where possible should work closely with their feeder primary schools to make sure that students who primary teachers view to have high potential are flagged, and that this information is fed through when they transfer to secondary, even if those pupils have not had high attainment in their Key Stage 2 tests. Schools should also view the KS2 results of disadvantaged students in context, for example by having lower thresholds for these students to be identified as highly able than non-disadvantaged pupils, to reflect the impact that their background is likely to have had on their test scores.

2.1.3 Testing

Testing is often used to identify highly able pupils. In the UK, common tests used include the national tests carried out within all state schools (such as those at the end of KS2) and the 11 plus which is used to determine entry to grammar schools. However, tests give only a snapshot of a student's ability at one point in time. Additionally, what exactly a test is measuring can vary, with some tests looking at subject specific knowledge, others a student's reasoning abilities, or their ability to learn a particular skill or process. What exactly is meant to be measured by any test used to identify the highly able needs to be carefully considered.

In parts of the UK, the 11 plus test is used to identify highly able students for admittance to grammar schools, tests which typically comprise elements of English, maths and reasoning. Pupils who are FSM-eligible are less likely to pass the 11 plus than non-eligible pupils, even when previous attainment in other exams is controlled for. Analysis carried out by Education Datalab examined the reasoning aspect of the test, and found that private school pupils from Kent, with the same English and maths results, score on average 3.7 marks higher in this part of the test compared to state pupils eligible for FSM. As Kent bans state schools from preparing pupils for the test, and the difference in scores is smaller when compared to private school pupils outside of Kent who wouldn't have been prepared for the test, this disparity is likely to be due to additional tutoring to coach pupils. While FSM-eligible pupils will have studied English and maths at school previously, they will likely have had no prior exposure to the reasoning element of the test. Conversely, private school pupils are more likely to have had previous experience of the reasoning portion.[13] This example highlights the importance of ensuring all pupils are given an equal opportunity to prepare for any test used to identify the highly able, taking into account the additional preparation better-off students are likely to be given outside of the classroom. Previous work by the Sutton Trust examining the tests used for grammar schools has recommended a minimum of ten hours of test preparation is provided to all potential grammar school applicants.[14]

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[12] Crawford, C., Macmillan, L. & Vignoles, A. (2014) Progress made by high-attaining children from disadvantaged backgrounds.
[13] Allen, R., Bartley, J. & Nye, P. (2007) The 11-plus is a loaded dice Analysis of Kent 11-plus data.
[14] Cribb, J., Jesson, D., Sibieta, L., Skipp, A. & Vignoles, A. (2013) Poor Grammar Entry into Grammar Schools for disadvantaged pupils in England.

When examining the types of tests used to identify the highly able, concerns have been raised that tests which are heavily focused on previous knowledge or cultural references are likely to disadvantage students from lower socioeconomic backgrounds, who may not have the same knowledge base or wealth of cultural references as other students.[15] Non-verbal tests have been highlighted as a possible solution to this problem, as these tests are less likely to include cultural references or require a high proficiency of English which disadvantaged students may not have.[16] However, little is currently known regarding the effectiveness of non-verbal tests to identify the highly able.

2.1.4 Teacher identification

Many initiatives for highly able students rely on teacher identification of students, on the basis that teachers may give a fuller picture of a student's performance over time, and may be more able to determine any potential a student has to improve which does not come across in a test. However, studies have found that teachers are less likely to refer low-income students than more advantaged students for programmes aimed at the highly able.[17] Additionally, teachers have been found to be less likely to judge low-income students as having above average ability in reading or in maths – even when their previous test scores indicate as such.[18] These preconceptions may make it harder for students outside of normal expectations to be noticed and put forward for programmes aimed at the highly able.

In Kent, an area with a grammar school system, headteacher panels determine which pupils (out of those with borderline scores in the 11 plus) to admit to grammar schools. Headteacher panels do admit a higher percentage of borderline students who are eligible for FSM than those who are not eligible, but still admit FSM pupils at lower rates than would be expected compared to those pupils' scores in standard assessment tests (SATs) exams.[19] Teacher bias against female,[20] ethnic minority[21] and English as an additional language[22] students have also been documented when identifying students for highly able programmes, including when other factors such as prior attainment have been controlled for. Teacher identification alone, without a system to counteract any innate biases, is not likely to identify all highly able students.

Importantly, these biases are not conscious on the part of teachers, but unconscious assessments made about students, and their causes are not entirely clear. It may be that the current spotlight on disadvantaged students, and messages about their lower attainment levels, contribute to teachers' assumptions about their abilities. Teachers may also be affected by their own personal experiences, for example if they have previously interacted with students who are both disadvantaged and have lower ability, they may begin to make assumptions and build stereotypes about other students from similar

[15] Vantassel-Baska, J. & Stambaugh, T. (2007) Overlooked Gems: A National Perspective on Low-Income Promising Learners.

[16] We, J. & Lewis, J. D. (2000) Language isn't needed: Non-verbal assessments and gifted learners.

[17] Elhoweris, H. (2008) Teacher Judgment in Identifying Gifted/Talented Students. Chowdry, H. *et al.* (2010) Poorer children's educational attainment: How important are attitudes and behaviour? Siegle, D. & Powell, T. (2004) Exploring Teacher Biases When Nominating Students for Gifted Programs. *Gift. Child Q.* 48, 21–29. Siegle, D. (2001) Teacher bias in identifying gifted and talented students. in *Annual Meeting of the Council for Exceptional Children* 18–21. Jæger, M. M. & Møllegaard, S. (2017) Cultural capital, teacher bias, and educational success: New evidence from monozygotic twins. *Soc. Sci. Res.* 65, 130–144. Campbell, T. (2015) Stereotyped at Seven? Biases in Teacher Judgement of Pupils' Ability and Attainment. *J. Soc. Policy* 44, 517–547. Grissom, J. A. & Redding, C. (2016) Discretion and Disproportionality - Explaining the Underrepresentation of High-Achieving Students of Color in Gifted Programs. Riedl Cross, J. & Dockery, D. (2014). Identification of Low-Income Gifted Learners: A Review of Recent Research.

[18] Campbell, T. (2015) Stereotyped at Seven? Biases in Teacher Judgement of Pupils' Ability and Attainment. *J. Soc. Policy* 44, 517–547.

[19] Allen, R., Bartley, J. & Nye, P. (2007) The 11-plus is a loaded dice Analysis of Kent 11-plus data.

[20] Siegle, D. Teacher bias in identifying gifted and talented students. (2001) in *Annual Meeting of the Council for Exceptional Children* 18–21.

[21] Grissom, J. A. & Redding, C. (2016) Discretion and Disproportionality - Explaining the Underrepresentation of High-Achieving Students of Color in Gifted Programs.

[22] Riedl Cross, J. & Dockery, D. (2014). Identification of Low-Income Gifted Learners: A Review of Recent Research.

backgrounds. Additionally, teachers are also part of wider society, and may be influenced by messages about certain groups present in the media.

In some programmes for the highly able, pupils are only tested when referred by their parents or teachers. However, research from the US has found that relying on referrals can miss disadvantaged students who are highly able. Significantly more pupils eligible for free school lunches in the US are identified as highly able when programmes test all students, compared to programmes which only test those who were referred by parents and teachers.[23] Teachers may not refer disadvantaged students due to the biases outlined above, and parents may not refer their own children if they do not see the value of programmes for highly able students, or if they assume their child would not qualify.[1,24]

There is limited evidence on how best to tackle teacher biases. To try to tackle the problem, checklists have been developed to help teachers when identifying highly able students, but these checklists have not been thoroughly tested to ensure that they adequately identify highly able disadvantaged students, or to establish how well students who have been identified by such tests then go on to perform academically.[25] Previous research has also highlighted the possibility that teachers may be able to reduce their biases through training and increased awareness of the issue.[26] However, more research in this area is also required.

2.1.5 Conclusions

Given the limitations of current methods to identify highly able students, particularly those from disadvantaged backgrounds, there are questions as to whether identifying the highly able should even be attempted. However, even considering the limitations outlined, it is often necessary to identify this group of students. Only by identifying highly able students can teachers effectively monitor their progress and compare it to that of other similar pupils, a process which is especially important for highly able students from disadvantaged backgrounds, who are more likely to fall behind their peers.[27] and therefore require additional support. By monitoring students, teachers have the opportunity to put in place interventions, such as additional tutoring, as soon as a pupil begins to fall behind.

Where possible, interventions to benefit the highly able should be available to all students. For example, at Hatch End High school, featured in case study 2, all KS3 students are required to complete a homework book each week, with an optional challenge section. While this section is designed for highly able students, it is available for any student to complete if able to do so. Having tasks which are available to all students means that promising students who haven't been identified can still benefit from stretching tasks.

However, while it would be preferable to have activities such as trips and enrichment activities available to all pupils, to ensure that any who can benefit have the opportunity, due to constraints on resources, it may not be possible to provide an intervention or programme to all pupils in a school. In such circumstances, where a programme is likely to particularly benefit the highly able, it may be necessary to limit it to that group of students. In these cases, care should be taken to ensure that highly able

[23] Card, D. & Giuliano, L. (2016) Universal screening increases the representation of low-income and minority students in gifted education. Proc. Natl. Acad. Sci. U. S. A. 113, 13678–13683.
[24] We, J. & Lewis, J. D. (2000) Language isn't needed: Non-verbal assessments and gifted learners.
[25] Peters, S. J. & Gentry, M. (2010) Multigroup Construct Validity Evidence of the HOPE Scale: Instrumentation to Identify Low-Income Elementary Students for Gifted Programs. Gift. Child Q. 54, 298–313.
[26] Campbell, T. (2015) Stereotyped at Seven? Biases in Teacher Judgement of Pupils' Ability and Attainment. *J. Soc. Policy* 44, 517–547.
[27] Education Endowment Foundation. (2018) The Attainment Gap.

students from a range of backgrounds, including those who are also disadvantaged, are included in such programmes.

For instances in which the identification of highly able students is required, schools should ensure that students are identified early, to limit the number of disadvantaged students who have already fallen behind. Assessment should also be ongoing throughout a student's time at school, to make sure that students missed at one stage have another chance to be identified. Testing is more likely to be used in a fair and transparent way, and so should be used rather than teacher assessments. Where testing is used, all students should be entered for tests, and students should be given in class preparation to limit the benefit of any additional tutoring outside of the classroom. Where possible and subject appropriate, tests should not focus heavily on prior knowledge or specific cultural references, as these have the potential to unfairly advantage students from better-off backgrounds.

In tests to identify the highly able, cut off points are normally used, for example schools will often identify those in say the top 10% or 20% - either nationally or within their school, by KS2 test results. There is no clear consensus as to where this line should be drawn, and may vary depending on school, for instance due to what resources they have available to target at the highly able. Most importantly, in any system in which a hard cut off is used in a test, schools should consider reducing the boundary for students from disadvantaged backgrounds, to reflect the likely impact of the attainment gap and the extent to which this can mask their potential.

2.2 How to support highly able pupils

Limited research is available on interventions to support the highly able, particularly those from lower income backgrounds. This section examines the current evidence base on how best to support the highly able, including the role of teachers, and the potential of several interventions including accelerated learning, mentoring programmes, and extracurricular activities. However, further work is necessary to allow practitioners to have a fully evidence based approach to interventions for students with the potential for high attainment.

2.2.1 The role of teachers

Teachers have the potential to play a pivotal role in supporting highly able students. They can monitor a student's progression over time, and are also in the ideal position to target interventions, such as additional material, work or classes. While evidence on how best to support the highly able is limited, teachers should use the evidence that is available, and should share best practice with other teachers when designing interventions for this group.

While all teachers have the potential to help the highly able, subject specialism can be important. Teachers who hold masters degrees, or higher, in their specific subject are the most effective on average for highly able students.[28] The importance of subject specialist teachers in general can be difficult to determine, as most large studies tend to look at school performance overall, rather than tracking the performance of students taught by specific teachers. Despite those difficulties, there is a growing body of research indicating that strong content knowledge does impact on student attainment. For example,

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[28] Mills, C. J. (2003) Characteristics of Effective Teachers of Gifted Students: Teacher Background and Personality Styles of Students. *Gift. Child Q.* 47, 272–281.

a teacher's level of understanding of mathematics has been found to directly impact the amount that their students learn.[29,30]

Sutton Trust research has found that schools with the highest percentages of FSM eligible students have lower proportions of specialised science teachers,[31] and recent work has shown the same is true of teachers with a specialism in maths.[32] Therefore, many disadvantaged students do not have access to teachers with specialist knowledge of their subject, who may be more able to stretch them and answer complex subject specific questions in lessons. The best teachers also tend to be the most experienced, but experienced teachers are less likely to work in more disadvantaged schools,[33] meaning that those from lower socioeconomic backgrounds are less likely to be taught by the best teachers. To ensure that all highly able students can meet their potential, all such students, including those in disadvantaged areas, should have access to experienced teachers with subject specialism.

2.2.2 Accelerated learning, setting and differentiation

Accelerated learning involves highly able students being given more advanced content than other students. There is evidence that these students benefit from being given more advanced content, for example, if high attaining students are grouped together for classes, they do only slightly better than their peers. However, if these students are grouped and also have enriched, advanced or accelerated learning in classes, they have been found to outperform equivalent students by two to three months.[34,35] Accelerated learning can include skipping forward in class to materials usually used for older students, skipping forward a year in school, or having additional more advanced classes in addition to a student's usual lessons.

There are two ways in which accelerated learning can be put in place for highly able students. High attainers can be grouped together, as occurs in schools using setting and streaming, in which accelerated learning can be put in place for the entire class. Alternatively, accelerated learning can be put in place for highly able students within the same classes as their peers, using differentiation within the classroom.

Setting and streaming are both commonly used in UK schools. Setting is the practice of putting students of similar abilities together only for certain lessons, while in schools with streaming - students are put together into ability groups for all lessons, rather than specifically for different subjects. Both practices allow high attaining students to be grouped together, and for their learning to be enriched and accelerated. However, while setting and streaming are known to benefit students with high prior attainment, evidence suggests that the practices are detrimental for those with previously low or middle attainment.[36,37] This is particularly concerning for highly able students from disadvantaged backgrounds, given the evidence on the difficulty of identifying these students (see section 2.1). Indeed, research has found that students from lower socioeconomic backgrounds are consistently placed into lower sets and

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[29] Hill, H. C., Rowan, B. (2005) & Loewenberg Ball, D. Effects of Teachers' Mathematical Knowledge for Teaching on Student Achievement. *Am. Educ. Res. Journal; Summer* 42.

[30] Coe, R., Aloisi, C., Higgins, S. & Major, L. E. (2014) What makes great teaching? The Sutton Trust.

[31] Kirby, P. & Cullinane, C. (2017) Science Shortfall. The Sutton Trust.

[32] Allen, R & Sims, S. (2018) How do shortages of maths teachers affect the within-school allocation of maths teachers to pupils?

[33] The Sutton Trust. (2016) Best in class.

[34] Kulik, J. (1992) An analysis of the research on ability grouping: historical and contemporary perspectives.

[35] Reis, S. M. & Renzulli, J. S. (2010) Is there still a need for gifted education? An examination of current research.

[36] Setting or streaming | Toolkit Strand | Education Endowment Foundation | Available at: https://educationendowmentfoundation.org.uk/evidence-summaries/teaching-learning-toolkit/setting-or-streaming/. (Accessed: 9th May 2018)

[37] Gamoran, A. (2010) Tracking and Inequality: New Directions for Research and Practice. In M. Apple, S. J. Ball, and L. A. Gandin (Eds.),The Routledge International Handbook of the Sociology of Education. 213-228

streams, and that this is often based on the teachers' judgements rather than on prior attainment. Additionally, students are very rarely moved between sets or streams once they have been placed.[38]

The differences in teaching that students receive in lower sets or streams is likely to explain much of the negative impact the practice has on these students. Setting or streaming can lead teachers to assume all students within each class are very similar, and that differences between students in different classes are much larger than they are. This can in turn result in teachers not correctly planning work for the abilities of students within their classes, for example causing teachers of lower sets or streams to over-compensate, and go at a slower pace than the class actually requires.[39] Indeed, when students in low and middle sets of similar prior attainment are compared, middle-group students improve more, suggesting that slower-paced teaching contributes to the reduced attainment found in low sets.[40] Additionally, teachers are likely to compete for the chance to take top set classes, leading to more experienced or higher quality teachers being chosen to take those classes. There is also evidence that teachers of higher sets are more enthusiastic, and therefore spend more time preparing for their classes.[41] Together, these factors are likely to improve the quality of teaching top classes experience, and reduce the quality of teaching in lower sets or streams.

However, as well as the impact of teachers, there is also concern that for students, being put in a lower set can damage the confidence they have in their own abilities, which may also impact their attainment. The Education Endowment Foundation's (EEF) summary on setting and streaming cites evidence that the practices may undermine low attainers' confidence, and discourage the belief that attainment can be improved through effort.[42] If students have less confidence in their ability, they may not work as hard in class, and so end up with lower attainment than they are capable of.

It is also possible to accelerate the learning of highly able students by using differentiation within the classroom. The method can be used in both mixed ability classes, and in classes which have been set or streamed. In classes which are set or streamed, differentiation can allow teachers to cater content to individual pupils across the ability spectrum of the class, so can enable a teacher to give a student stretching work, even if they have been placed in a lower set than the work they are capable of. Furthermore, differentiation can also allow highly able students in mixed ability classes to be stretched and challenged, while avoiding many of the negative impacts of setting and streaming. Differentiation for highly able students can include giving students more challenging tasks within a lesson, taking them though material at a faster pace, using more in-depth resources, or expecting more complex and sophisticated work as the lesson's outcome for those students. However, even using differentiation in mixed lessons has potential problems, as if the potential of highly able disadvantaged students is not identified, they may not be given stretching or challenging activities within their class. Nonetheless, Ofsted's report on highly able students found that differentiated tasks, challenging questions and extension work were the most common methods used by teachers to support highly able students,[43] and research suggests that differentiation in the classroom can improve academic outcomes for highly able

[38] Francis, B. *et al.* (2018) Why is it difficult for schools to establish equitable practices in allocating students to attainment 'sets'? *Br. J. Educ. Stud.*
[39] D Stipek. (2010) How Do Teachers' Expectations Affect Student Learning.
[40] Gamoran, A. (1992) Is Ability Grouping Equitable? *Educ. Leadersh.*
[41] Oakes, J., Gamoran, A. & Page, R. (1991) Curriculum differentiation: opportunities, consequences and meanings.
[42] Setting or streaming | Toolkit Strand | Education Endowment Foundation | EEF. Available at: https://educationendowmentfoundation.org.uk/evidence-summaries/teaching-learning-toolkit/setting-or-streaming/. (Accessed: 9th May 2018)
[43] Ofsted. (2015) The most able students: an update on progress since June 2013 - GOV.UK.

students,[44,45,46] including highly able students from disadvantaged backgrounds.[47] There is not currently evidence available to compare the performance of highly able students in mixed verses streamed or set classes, when differentiation is used in both contexts, to be able to properly and fairly compare the two methods.

2.2.3 Mentoring and tutoring programmes

Mentoring programmes are often aimed at students from a specific target group, for example, highly able students from disadvantaged backgrounds. The programmes aim to help students to develop relationships with older, more experienced students or professionals. Typically, mentors and mentees will meet for about an hour a week, and sessions can include both general advice and direct academic support. The premise of such programmes is that the mentor can give a student advice, or help to raise a student's aspirations; and in doing so increase their attainment or progression onto higher education. Such mentoring schemes are very difficult to evaluate, as a wide variety of different models exist. However, there is some evidence for the successful impact of mentoring programmes for highly able low-income students.

Aimhigher was a national programme in the UK which ran from 2004 to 2011. The programme was aimed at highly able students with the potential to go onto higher education, from lower income families or from areas where participation in higher education was low. The scheme had several different components, including visits to universities, master classes, residential summer schools and a large programme of targeted mentoring. Programmes were designed and coordinated locally, so there were considerable differences in how the initiative was run in different areas. Participation rates of young people going onto higher education in Aimhigher target areas did increase during the programme.[48] However, it is unclear whether this was due either solely or in part to Aimhigher, or other changes or interventions which took place during this period.

There is evidence that the mentoring aspect of the Aimhigher programme was effective at raising attainment. Aimhigher Kent and Medway undertook an evaluation of the role and impact of mentors, and found over 80% of students who had an Aimhigher mentor (an older student, often at university) achieved higher total GCSE points than their predicted estimates at year nine. This compared to 65% of non Aimhigher students in the same area with similar predicted scores to the analysis group.[49] It is not clear whether the mentoring programme was helped by the other interventions Aimhigher ran alongside it, but the programme overall had clear benefits for the highly able disadvantaged students who attended it.
A mentoring programme run by the University of Birmingham, named 'Forward Thinking', was targeted at highly able disadvantaged students between the ages of 12-16 years old. The students carried out activities at the university and received one-to-one mentoring from undergraduates at their school. Evaluation carried out by the University of Birmingham found 93.8% of students on the programme

[44] Firmender, J. M., Reis, S. M. & Sweeny, S. M. (2013) Reading Comprehension and Fluency Levels Ranges Across Diverse Classrooms. *Gift. Child Q.* 57, 3–14.

[45] Pierce, R. L. *et al.* (2011) The Effects of Clustering and Curriculum on the Development of Gifted Learners' Math Achievement. *J. Educ. Gift.* 34, 569–594.

[46] Gamoran, Adam. (2011) Designing Instruction and Grouping Students to Enhance the Learning of All: New Hope or False Promise? In M. T. Hallinan (Ed.),Frontiers in Sociology of Education. 111-126

[47] Valiandes, S. (2015) Evaluating the impact of differentiated instruction on literacy and reading in mixed ability classrooms: Quality and equity dimensions of education effectiveness. *Stud. Educ. Eval.* 45, 17–26.

[48] Moore, J. & Dunworth, F. (2011) Review of Evidence from Aimhigher Area Partnerships of the Impact of Aimhigher.

[49] Smith, S. (2010) Assessing the Impact of Aimhigher Kent and Medway.

achieved 5 GCSEs including English and Maths, compared to 85.7% of highly able students not in the programme in participating schools doing so.[50,51]

In the US, several programmes of additional tutoring have been developed to specifically target disadvantaged highly able students. An example is Open GATE, a programme which helped to support disadvantaged students on California's highly able student programme. Highly able students on free or reduced cost lunches were identified at eight to nine years old, and the intervention ran for two years. Students were given daily one-on-one tutoring, provided by university student volunteers who were trained for the programme by San Diego State University. Students were then paired with tutors who had similar backgrounds or life experiences, and tutored primarily in literacy, but could be given help on any other subject. Students' parents were also given classes and additional support. The programme was evaluated by San Diego State University, who found that 71% of Open Gate students scored above the 75th percentile on standardised tests following the programme, compared to 51% doing so in a group of disadvantaged highly able children not on the programme.[52]

2.2.4 Extracurricular activities

Extracurricular activities have the potential to develop both academic skills, and essential life skills which can help highly able students to succeed – such as confidence, motivation, resilience and communication skills.[53] Taking part in extracurricular activities has been found to be associated with higher academic attainment and greater future earnings. However, low-income students are less likely to have access to such activities.[54,55] Therefore, interventions which ensure that disadvantaged highly able students have access to extracurricular activities could potentially help to close the gaps between these students and their better-off peers, though very little research has been done to establish their impact on the highly able.

In the US, debate leagues for 14 to 18-year-olds have been set up in urban areas which are predominantly low-income, and have a higher proportion of minority students. Male African American students who took part in Chicago's urban debate league were found to be 70% more likely to graduate, and three times less likely to drop out of school than non-participating African American students with similar test scores. Participating students were also more likely to score above the ACT (American College Testing) mark needed to enter college in English and reading. Whilst this programme was not aimed specifically at highly able students, participants were self-selecting, and were found to have higher SAT scores on average than non-participating students.[56] In the UK, previous research by the Sutton Trust has found that schools with the highest proportion of disadvantaged students are less likely to offer several extra-curricular activities, including debating - which is offered in 70% of schools with the 5th most advantaged pupil intake, but in only 35% of the schools with the 5th least advantaged student intake.[53]

Some schools run additional after-school sessions for their highly able students. For example, Belvedere Academy, which is featured in case study 4, has a High Achievers programme which is run as an after-

[50] The Russell Group. (2017) How Russell Group universities facilitate social mobility.
[51] University of Birmingham Access Agreement 2017-18.
[52] Kitano, M. K. & Lewis, R. B. (2007) Examining the Relationships Between Reading Achievement and Tutoring Duration and Content for Gifted Culturally and Linguistically Diverse Students From Low-Income Backgrounds.
[53] Cullinane, C & Montacute, R. (2017) Life Lessons. The Sutton Trust.
[54] Birdwell, J., Scott, R. & Koninckx, D. (2015) Demos: Learning by doing.
[55] Olszewski-Kubilius, P. & Lee, S. (2004) Parent perceptions of the effects of the Saturday enrichment program on gifted students' talent development. *Roeper Rev.* 26, 156–165.
[56] Mezuk, B. (2009) Urban Debate and High School Educational Outcomes for African American Males: The Case of the Chicago Debate League. *The Journal of Negro Education* 78, 290–304.

school club. During this programme, staff deliver undergraduate style tutorials to students, and external visitors also run workshops for the students. The subjects of the afterschool sessions are designed to extend on what is covered in the normal curriculum, with previous topics over a wide range of subjects such as 'The Value of Art', or 'Quantum Mechanics and Parallel Universes'. Programmes such as this allow students to be stretched and challenged, so are likely to be beneficial for highly able students.

2.2.5 Parental and community support

The support and help of a student's family and wider community can be important for a student's attainment, with research finding that after controlling for prior attainment and family background, students are more likely to do well at GCSE if their parents think it is likely their child will go onto higher education.[57] Additionally, qualitative projects looking at small groups of highly able disadvantaged students have highlighted the importance of family as a source of encouragement and support for this group.[58,59] Studies have also raised concerns that highly able students from lower income backgrounds may not want to engage in programmes or interventions because they want to continue to fit in with their friends and wider peer group,[60] and that students may drop out of programmes because of these worries.[61] Any interventions aimed at highly able students should therefore be carefully designed to be sensitive to these concerns. Targeting the parents and wider communities of students is one potential way to help, especially for pupils from backgrounds where high attainment and progression onto university are not usually expected.

2.2.6 Conclusions

More research is needed on interventions to benefit the highly able, and especially on how to best support highly able students who are from lower socioeconomic backgrounds. In the classroom, teachers who are highly qualified in specific subjects are known to be particularly effective for highly able students, but all teachers have the potential to support highly able students by monitoring their progression over time, and putting interventions in place if they are not fulfilling their potential.

Grouping and accelerated learning are known to benefit high attaining students. However, setting and streaming classes can harm the attainment of those in lower sets. Due to the difficulties in identifying highly able students from disadvantaged backgrounds, and the increased likelihood these students will have lower prior attainment, highly able students from lower socioeconomic backgrounds are more likely than their better-off highly able peers to be put in lower sets, and to subsequently have their potential attainment negatively impacted.

The Education Endowment Foundation are currently funding a project carried out by researchers at UCL and Queen's University Belfast to establish best practice in grouping students. The project has advised that placement in sets should be transparent, and based solely on prior attainment at KS2. Additionally, there should be regular opportunities to move students between sets, based on internal assessment results. Although testing does also reflect socioeconomic inequalities - including teacher biases in the previous teaching of pupils - this is less subjective than teachers themselves directly setting students.

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[57] Chowdry, H. *et al*. (2010) Poorer children's educational attainment: How important are attitudes and behaviour?
[58] VanTassel-Baska, J. (1989) The Role of the Family in the Success of Disadvantaged Gifted Learners. *J. Educ. Gift.* 13, 22–36.
[59] Tomlinson, C. A., Callahan, C. M. & Lelli, K. M. (1997) Challenging Expectations: Case Studies of High-Potential.
[60] Stormont, M., Stebbins, M. S. & Holliday, G. (2001) Characteristics and educational support needs of underrepresented gifted adolescents. *Psychol. Sch.* 38, 413–423.
[61] Vantassel-Baska, J. & Stambaugh, T. (2007) Overlooked Gems: A National Perspective on Low-Income Promising Learners Conference Proceedings from the National Leadership Conference on Low-Income Promising Learners.

Differentiation can be used to stretch the highly able. However, even in mixed ability settings, teachers should still be mindful of the difficulty of identifying highly able students from lower socioeconomic backgrounds, and be careful to provide all students with tasks which are challenging and stretching for them.

Outside of the classroom, mentoring and tutoring programmes are promising interventions for highly able students from disadvantaged backgrounds. Although most of the evidence for these programmes is based on university student mentors, if a collaboration with a local university is not possible (for example, there is no university located nearby), there are other ways that mentoring programmes could be put in place in schools which are likely to benefit the highly able. For example, older students within the school could act as mentors for younger students.

Likewise, debating as an extracurricular activity is a promising intervention for the highly able, and although ideally would be introduced into a school as part of a structured programme (such as those run by the English-Speaking Union or Debate Mate), if a school can't access a structured debating programme from an external organisation, a club can alternatively be run by a teacher or older students using online resources at low cost. At Cardinal Newnham Catholic school, which is featured as case study 1 in this report, an after-school debate club is targeted at highly able students, with a teacher from the school explaining that – "We run a model in which Year 11 and Year 12 students coach younger year groups. We also enter students for the Oxford Schools and Debating Matters competitions, which are highly effective as a means of providing able and talented students with challenging and thought-provoking opportunities for debate and discussion which go beyond the demands of the curriculum."

3. Methodology

3.1 Data work on high attainers at Key Stage 2

Data on high attainers at Key Stage 2 was analysed and supplied from the National Pupil Database (NPD) by the National Foundation for Educational Research. Data was examined over three years, from 2014 to 2016, and was analysed using SPSS statistics software. Schools were matched to publicly available data from the Department for Education, and included where matching with public data was possible across all three years

The top 10% of students, referred to as high attainers, were calculated based on their combined performance in English and maths at KS2. Ethnicities were derived from the NPD variable *EthnicGroupMajor*, using the categories White, Black, Asian (defined here as a combination of the Asian and Chinese categories from the NPD), and Other (NPD variables any other ethnic group, mixed and unclassified).

Disadvantaged students were defined as those eligible for the Pupil Premium, represented by the EVERFSM_6 flag, which indicated whether a pupil had ever been recorded as eligible for free school meals in the last six years, taken from the year in which they took their GCSEs. Data was analysed using SPSS statistics software. Schools were matched to publicly available data from the Department for Education, and included where matching with public data was possible across all three years.

GCSE point score and 5A*-A were used to measure attainment at KS4 in all three years studied. The measure GCSE point score here refers to the total GCSE and equivalents points score. The measure 5A*-A refers to students who have achieved at least five A* or A grades at GCSE. In 2016, the measures Attainment 8 and Progress 8 were also examined.

3.2 Selection of case studies

Case study schools were identified using publicly available data on school performance from the Department for Education for the academic years 2014 to 2016. Schools were included if they were listed as comprehensives, at least 10% of their students were eligible for free school meals, and at least six of their students in each year were in the top third for attainment at KS2 (the proportion of high attainers available in public data). Schools were selected in which high attainers had above average attainment at KS4 in all three years studied. Attainment at KS4 was measured by average GCSE points score in all three years, with Attainment 8 and Progress 8 figures also considered in 2016. Of the schools with high attainment, case study schools were then selected from across England, of varying school types.

A questionnaire was sent out to the chosen schools, which asked a series of questions including: the definition of highly able pupils used at the school; how students are identified; if the school had any mechanisms to ensure highly able students from lower socioeconomic backgrounds are identified; which interventions the school had in place for the highly able; whether the school used pupil premium funding specifically to help disadvantaged highly able students and if so, what the money was spent on; and whether the school runs any extracurricular activities specifically targeted at this group. Answers provided by schools were then written up into case studies, or were used to inform the general summary of best practice included in section 5.

4. High attainers at Key Stage 2

The next section looks at the characteristics of high attainers, defined here as those in the top 10% for attainment in English and maths at KS2. Here, who this group are and which schools they attend are examined, before their performance at KS4 is then assessed, including which factors are associated with high performance at GCSE.

4.1 Who are high attainers?

In 2016, GCSE results were available for 488,460 students in state secondary schools in England. Of these students, 473,992 (97%) also had data available for their performance at KS2. A large majority of these students - 96% (454,537) attended comprehensive schools, while the remaining 4% (19,455 students) attended grammars.

There are several possible methods to define high attainment. Public data available from the Department for Education defines high attainers as those in the top third of students by performance at KS2. High attainers are also sometimes defined as those who achieve level 5 or 6 at KS2. In 2016, 18% of students achieved at least a level 5 in both English and maths, with 10% of students from disadvantaged backgrounds doing so. However, both measures still represent a relatively large proportion of all students. This report (as with previous Sutton Trust reports) aims to look at a smaller, more specific group of higher attainers, those who were in the top 10% for performance at KS2.

Just over ten percent (10.5%) of students with results available at both KS2 and GCSE were in the top 10% nationally for attainment in English and maths at KS2 (49,929). Importantly, even at this relatively early stage, many highly able students from disadvantaged backgrounds will have already fallen behind their more affluent peers, and so will not be included in this analysis. Given this limitation, the following section aims to give just a snapshot of previous high attainers, rather than a full picture of the highly able.

Of the 49,929 students with previous high attainment, 5,059 (10%) were from disadvantaged backgrounds, defined here as students who have at any point been FSM eligible in the last six years (consistent with pupil premium eligibility), up to and including the year in which they sat GCSE exams. This figure is considerably lower than the proportion of all students who are pupil premium eligible, which was 30% of all state school students sitting GCSE exams in 2016. Just 4% of all disadvantaged students had high attainment at KS2, compared to 13% of non-disadvantaged students. Students from disadvantaged backgrounds are therefore over three times less likely than their more advantaged peers to have high attainment at KS2 (see Figure 1).

Figure 1: Percentage of students who are high attainers by socioeconomic background
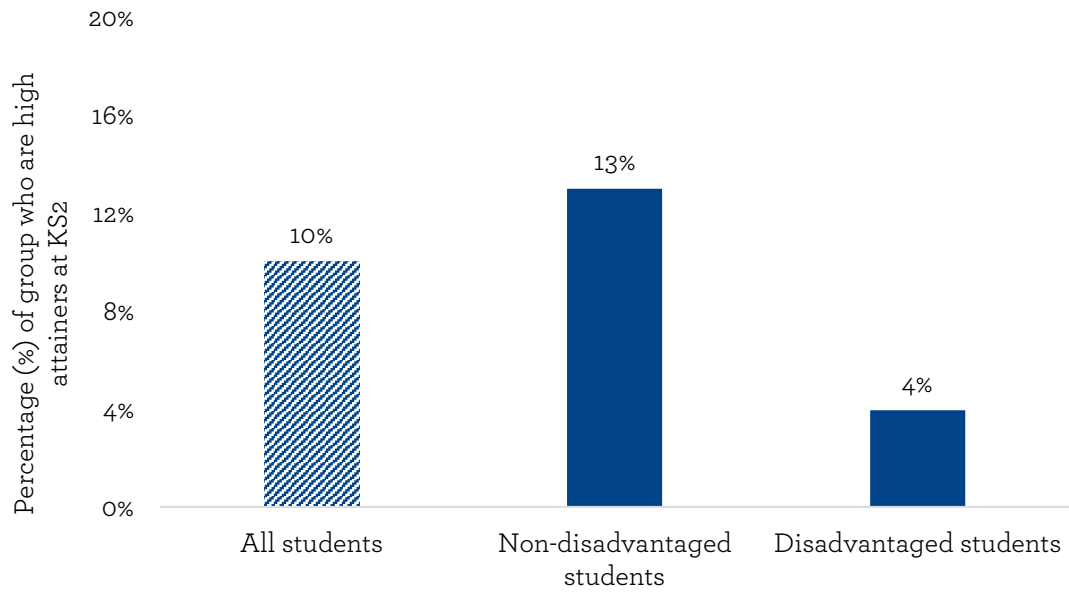
Students from black and minority ethnic (BAME) backgrounds are less likely to have high attainment at KS2 compared to their white peers. 10% of white students have high attainment at KS2, compared to just 6% of black students, and 11% of Asian students (see Figure 2). 81% of high attainers at KS2 are white, compared to 80% of students in comprehensives as a whole. Disadvantaged high attainers are more likely to be from BAME backgrounds than high attainers overall. 36% of high attainers from lower socioeconomic backgrounds are BAME, compared to only 20% of all high attainers (See Table 1).

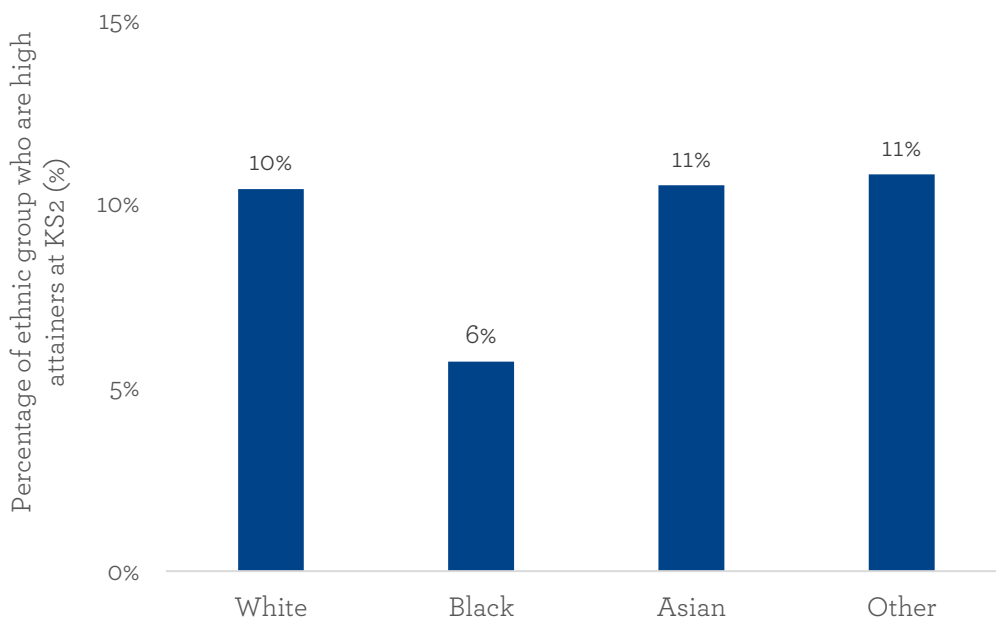**Figure 2: Percentage of students who are high attainers by ethnic group**

Table 1: Ethnicities of high attainers

Percentage of students of each ethnicity (%)	All students	All disadvantaged students	All high attainers	All disadvantaged high attainers
White	80%	70%	81%	64%
Black	5%	9%	3%	8%
Asian	9%	12%	10%	16%
Other	6%	9%	7%	12%

Regions across England vary in the percentage of their students with high attainment, with 11.4% of students in London and in the South East in the top 10% at KS2, but only 9.1% of the students in Yorkshire and the Humber (Figure 3). The region where the largest proportion of disadvantaged students were high attainers at KS2 was London, in which 4.8% of students from disadvantaged backgrounds had high attainment at KS2. By contrast, only 2.8% of disadvantaged students in Yorkshire and the Humber had high attainment at KS2 (Figure 4). This spread across regions is substantially greater than for all high attainers.

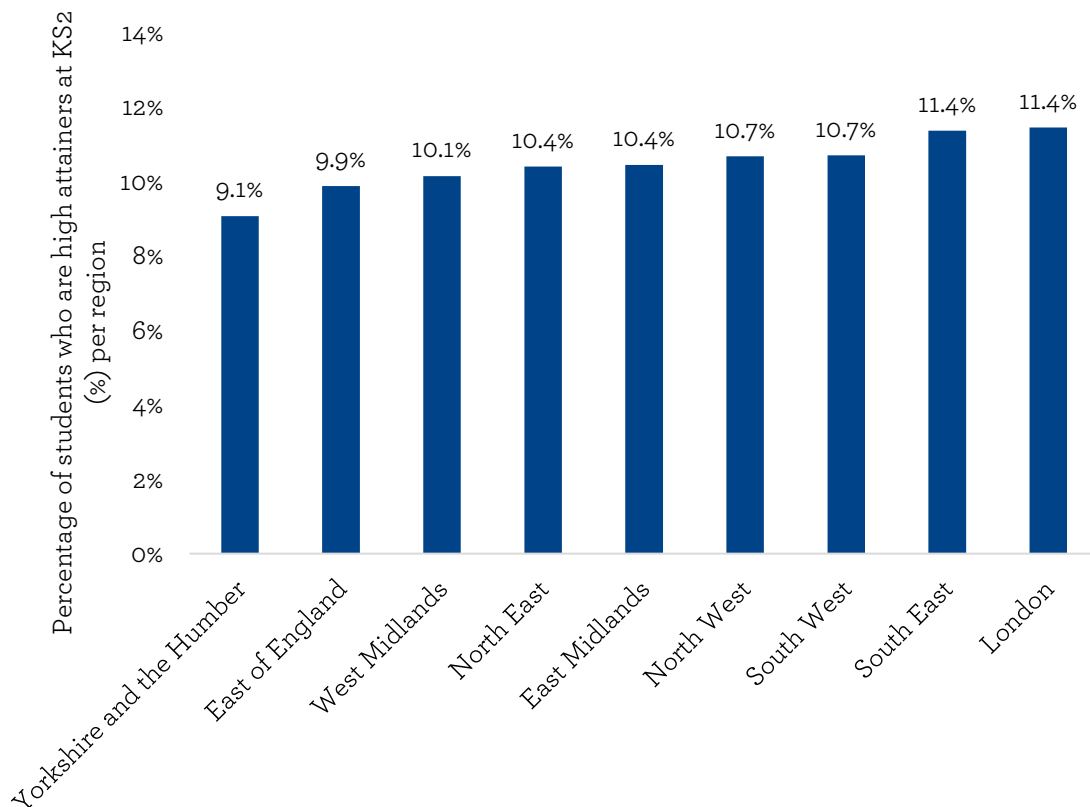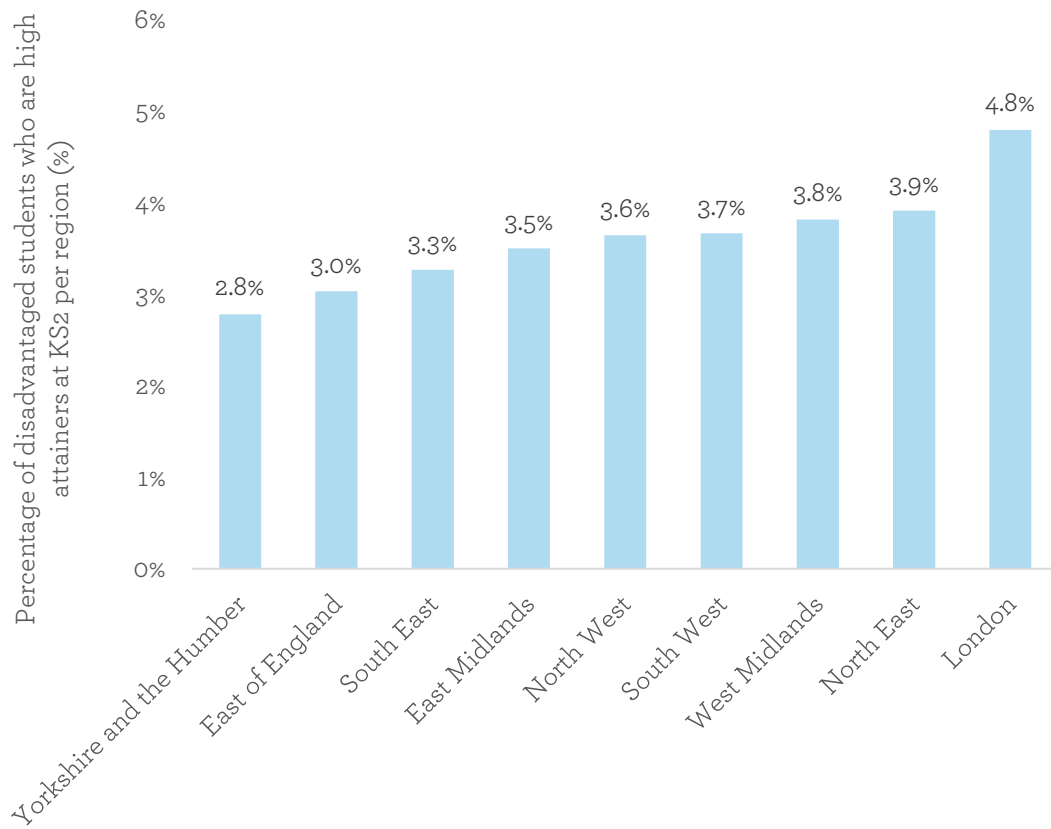## Figure 3: Percentage of students who are high attainers by region

Figure 4: Percentage of disadvantaged students who are high attainers by region

In grammar schools, 51% of all students are high attainers, compared to just 8% of students in comprehensives. However, a much small proportion of the high attainers in grammar schools are from disadvantaged backgrounds. In grammar schools, 2.9% of all students are both high attainers and from lower socioeconomic backgrounds, or about 1 in 17 of all high attaining students in those schools. Conversely, in comprehensive schools, 1% of all students are both high attainers and from disadvantaged backgrounds; or 1 in 8 of all high attainers (Figure 5).

Figure 5: Percentage of students who are high attainers, of all students in comprehensive and grammar schools
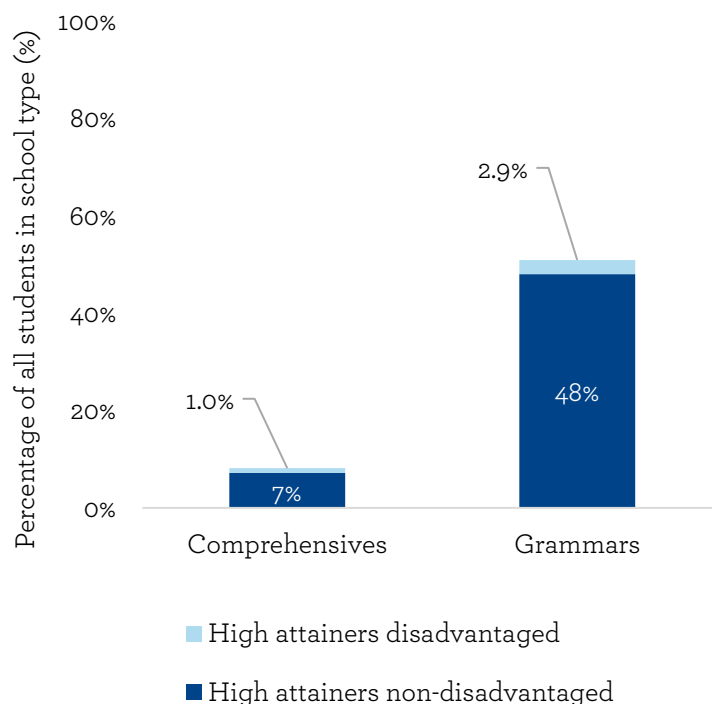
Disadvantaged high attainers are less likely to attend grammar schools than high attainers overall. In 2016, 80% of all high attainers attended comprehensives, and 20% attended grammar schools. In contrast, of high attainers from disadvantaged backgrounds, 89% attended comprehensives, and just 11% went to grammar schools, making disadvantaged high attainers almost half as likely to attend grammar schools as high attainers overall (see table 2).

Table 2: School types (by admissions policy) attended by high attainers

Percentage of students in each school type (%)	All students	All high attainers	All disadvantaged high attainers
Comprehensives	96%	80%	89%
Grammars	4%	20%	11%

The majority (80%) of previously high attaining students took their GCSEs in comprehensive schools, with a smaller number of students (9,701) with previous high attainment doing so in grammars. For previously high attaining students from disadvantaged backgrounds, the difference was even larger. Just under 90% (4,464 students) of previously high attaining students from lower income backgrounds attended comprehensive schools, with only a few hundred (595) attending grammar schools. As grammar schools are both unique in their composition compared to other schools, and as most high attaining students do not attend them, the remainder of this report will focus on high attainers in comprehensive schools.

Of comprehensive schools, academy converters had the highest proportions of high attainers, with 12% of students in academy converters having high attainment at KS2, and 0.9% having high attainers who were from disadvantaged backgrounds. In local authority maintained schools, 8.5% of students had high prior attainment, with 1% of students having both high attainment, and being disadvantaged. Sponsored academies had the lowest proportion of high attainers, with just 4.9% of students of students having high prior attainment (see Figure 6).

Figure 6: Percentage of students who are high attainers by school type
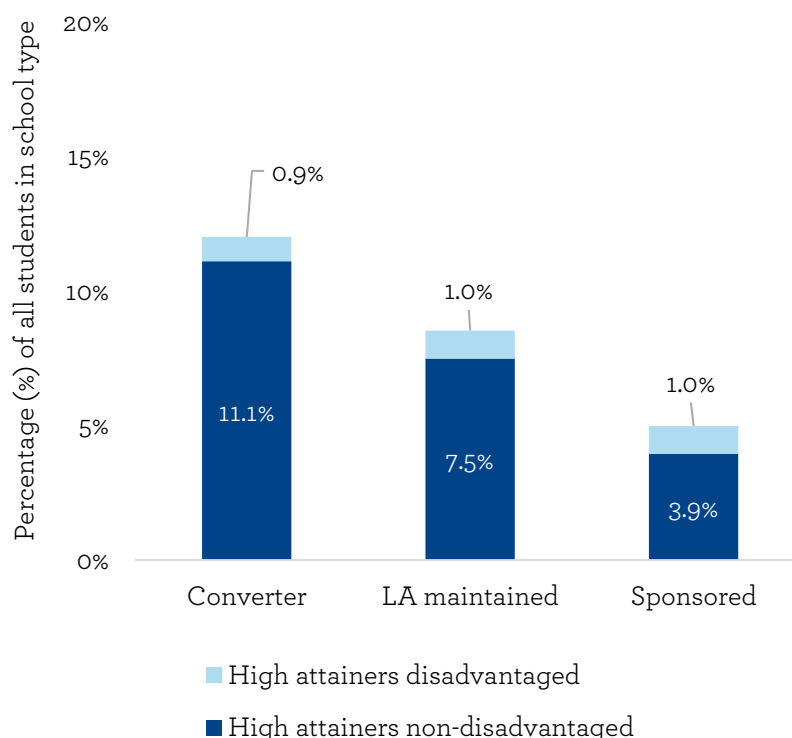
Most previously high attaining students in comprehensive schools attend academy converters (59%), but local authority (LA) maintained schools also have a large proportion of these students (32%), with a smaller proportion attending sponsored academies (8%). High attaining students from disadvantaged backgrounds are more likely than high attainers overall to attend LA maintained schools or sponsored academies, with 39% of high attainers from disadvantaged backgrounds attending LA maintained schools, and 17% attending sponsored academies (See table 3). A small proportion of high attainers attend free schools and University Technical Colleges (UTCs), but as numbers doing so are extremely low in the years covered, they have not been included in this analysis.

Table 3: School types attended by high attainers

Percentage of students in each school type (%)	All students	All disadvantaged students	All high attainers	All disadvantaged high attainers
Converter	47%	36%	59%	44%
LA maintained	37%	40%	32%	39%
Sponsored	16%	24%	8%	17%

Most comprehensive schools only have a small number of high attainers; with 43% (1312) schools having 10 or fewer, and only 7 having 100 or more. Disadvantaged high attainers are in even smaller numbers per school, with 883 having no such students, and 1,928 schools having between 1 and 5. The highest number of high attainers from low income backgrounds in any one school in 2016 was 18 (Table 4). The typical comprehensive has a median of 11 high attaining students, and of 1 high attaining and disadvantaged student.

Table 4: Frequency of high attainers in schools

| Number of highly able students	Number of schools with frequency	Number of highly able disadvantaged students	Number of schools with frequency
0-5	695	0	883
5-10	617	1	851
10-15	507	2	573
15-20	367	3	306
20-25	239	4	117
25-30	180	5	81
30-35	116	6	59
35-40	68	7	25
40-45	42	8	11
45-50	28	9	11
50-55	36	10	8
55-60	19	11	9
60-65	23	12	3
65-70	15	13	4
70-75	12	14	1
75-80	10	16	1
80-85	9	18	1
85-90	7		
90-95	7		
100+	7		

4.2 How well do high attainers perform at GCSE?

In 2016, high attainers from disadvantaged backgrounds underperformed high attainers overall at GCSE, across several different measures for GCSE performance. The GCSE points for all high attainers on average was 543, but only 506 for disadvantaged high attainers. For all students for whom KS2 data was available, the standard deviation (SD) in GCSE points score between schools was 61, and for high attainers, the SD was 64. Disadvantaged high attainers also had lower performance as measured by Attainment 8, with high attainers overall scoring an average per school of 70, compared to 66 for high attainers from lower socioeconomic backgrounds.

The measure 5A*-A looks at high performance specifically, covering the students who have achieved at least five A* or A grades in their GCSE exams. The percentage of all high attainers gaining at least 5A*-

A was found to be 69%. Just 52% of disadvantaged high attainers gained at least 5A*-A, compared to 72% of non-disadvantaged high attainers. If high-attaining disadvantaged students performed as well at GCSE as all advantaged high-attaining students, over 1000 more disadvantaged students would achieve at least 5 A*-A grades each year.

It is possible that the lower scores of disadvantaged high attainers at GCSE could be due to this group being towards the bottom of the top 10% for attainment at KS2. To determine whether this was the case, we examined the Progress 8 (P8) scores of high attainers, which shows the progress that students have made during their time at secondary school, relative to their results at KS2. The average P8 for disadvantaged high attainers is low at just -0.32, compared to 0.02 for all high attainers, and 0 for all students (see Figure 7). This is compared to -0.38 for all disadvantaged students in 2016,[62] showing that even high attaining students from disadvantaged backgrounds suffer from a similar lack of progress to that of all disadvantaged students between KS2 and KS4. As disadvantaged high attainers do not just have lower attainment at GCSE, but also make less progress, it is clear that this group are not making adequate progress, and are falling behind their potential at GCSE.

Figure 7: GCSE results for high attainers – 2016

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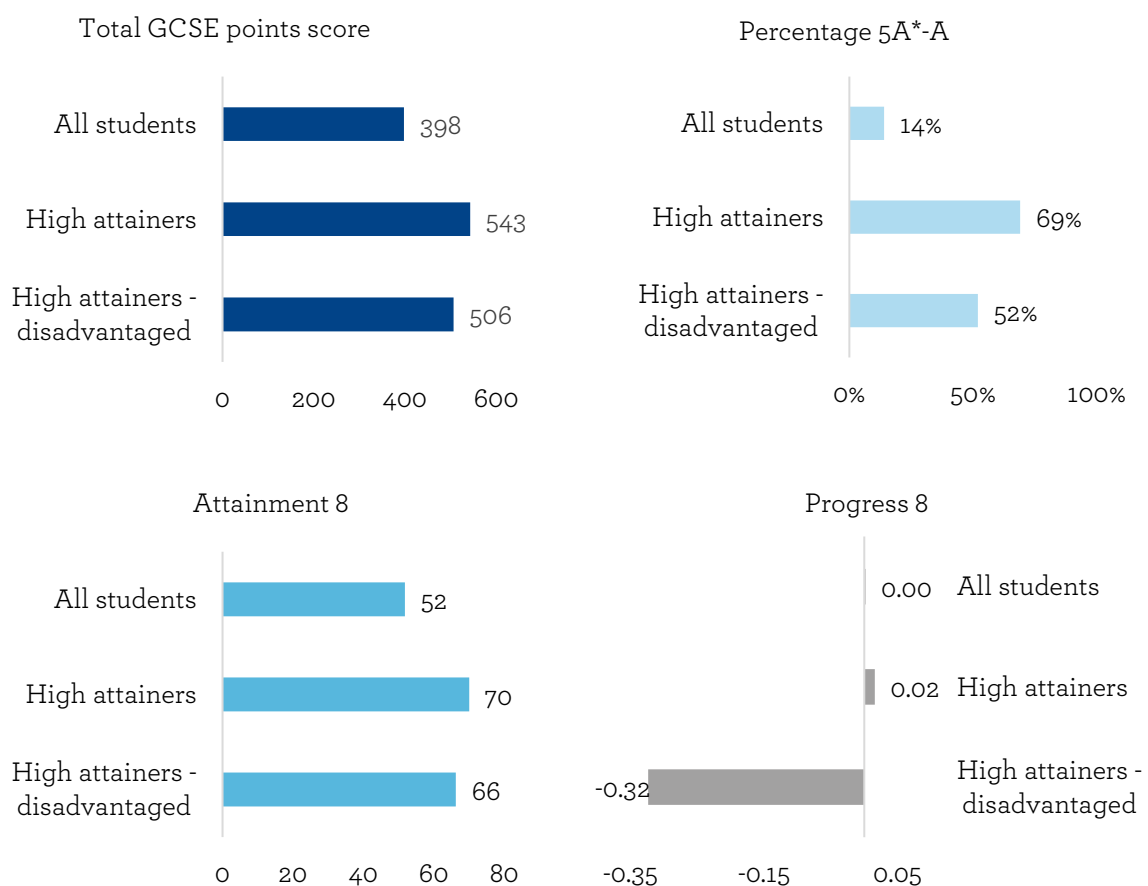
[62] Department for Education. Revised GCSE and equivalent results in England.

Looking at the interaction between ethnicity and disadvantage for high attainers, students who are both disadvantaged and white have the lowest GCSE points score, at just 495. Compared to white high attainers overall, with a score of 540, the gap is the largest for any ethnic group, at 45 points. Asian students have an average of 566 for all high attainers, and a score of 535 for disadvantaged high attainers, a smaller gap of 31 points. The smallest gap between all high attainers, and those from disadvantaged backgrounds was found for students from black ethnic backgrounds; with black high attainers having a GCSE points score of 543 on average per school, compared to 526 for black high attainers from disadvantaged backgrounds, a gap of only 17 points (see Figure 8). The proportion of disadvantaged high attainers gaining 5A*-A also differs by ethnicity, with just 45% of disadvantaged white students with high prior attainment gain 5A*-A at GCSE, compared to 63% of black students and 67% of Asian previously high attaining students from similar backgrounds. These findings are similar to those for disadvantaged students overall. Previous work by the Sutton Trust has shown that white British boys eligible for FSM achieve the lowest grades at GCSE of any main ethnic group, with just 24% achieving 5 A*-C (including English and maths) at GCSE.[63]

**Figure 8: GCSE results for high attainers by ethnicity – 2016**
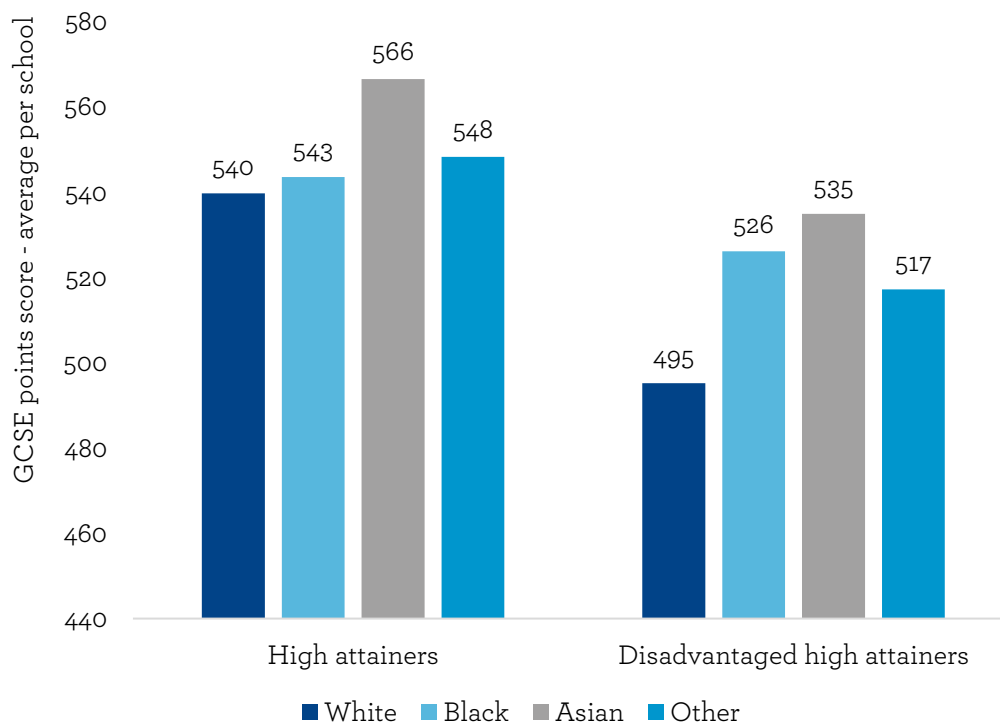
[63] Cullinane, C. & Kirby, P. (2018) Class differences: Ethnicity and disadvantage. The Sutton Trust.

4.3 What factors are associated with success at GCSE for high attainers?

In the following section, data is examined on GCSE performance across three years, from 2013/14 through to 2015/16. Pooling data across three years allows for a more detailed exploration of the factors which are associated with high attainment at GCSE, especially for disadvantaged high attainers, for whom there are much smaller numbers of pupils. Importantly, these factors are only associated with high attainment, and may not in and of themselves be causative. These factors also likely overlap with and interact with each other, so section 4.4 explores these associations while controlling for other factors.

High attainers in selective schools have higher performance at GCSE than their peers in comprehensive schools, with their GCSE points score just 525 on average per school, compared to 570 at grammar schools. For high attainers from disadvantaged backgrounds, attending a selective school was associated with a similar difference in performance from an average of 496 per school, to 547 (see Figure 9).

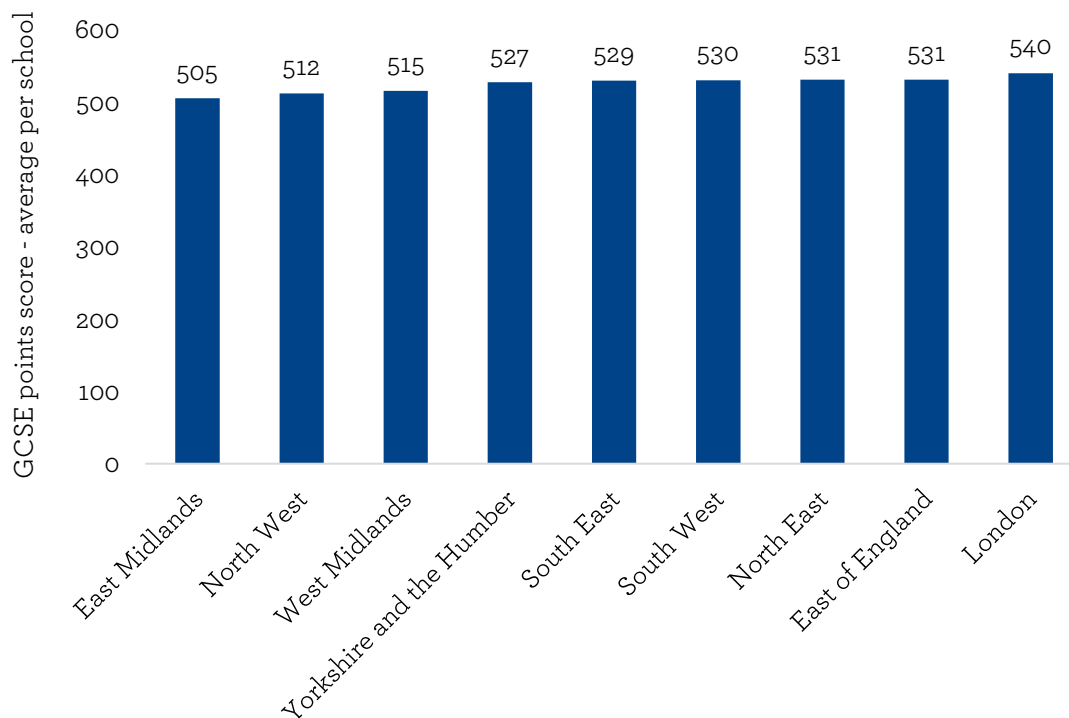**Figure 9: KS4 performance of high attainers by admission policy of schools**
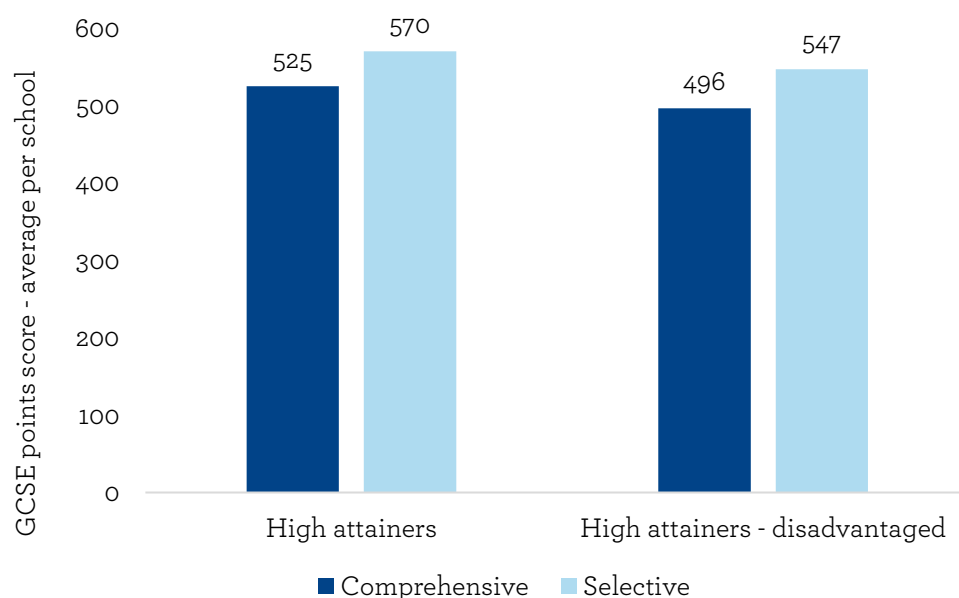
Focusing only on comprehensive schools, the performance of high attainers is also associated with the type of school that a high attainer attends. Converter academies were found to have the highest performance per school of both high attainers overall (540), and those from disadvantaged backgrounds (510). LA maintained academies had the second highest scores on average, of 523 and 492 respectively for these groups. High attainers had the lowest results at GCSE in sponsored academies, with high attainers overall scoring on 498 per school on average, and disadvantaged high attainers gaining 480 points, although the gap proportionally between disadvantaged high attainers and high attainers overall was the lowest in this school type (see Figure 10).

Figure 10: KS4 performance of high attainers by school type
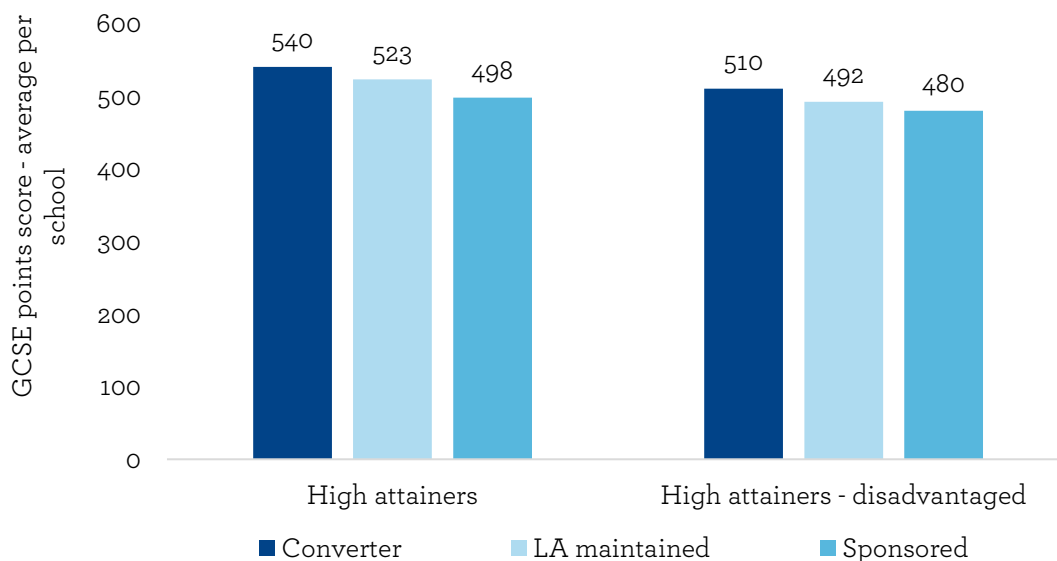
The performance of high attaining students in comprehensive schools also differs across England. High attainers had the highest performance at GCSE level in schools in London, with an average of 540 points per school, followed by the East of England and the North East, both with averages of 531. The lowest performance for high attainers was in the East Midlands, with a GCSE points score of just 505 on average per school.

Figure 11: KS4 performance of high attainers by region

Very similar regional disparities were also present in the performance of disadvantaged high attainers, the highest average score for this group being 521 per school in London, and the lowest 476 in the East Midlands (see Figure 12). Yorkshire and the Humber had the largest gap in GCSE attainment between disadvantaged high attainers and all high attainers, with GCSE points scores which were on average 40 points, or 7.6% lower for disadvantaged high attainers. London had the smallest gap, with average scores for disadvantaged high attainers per school only 19 points, or 3.5% behind those of high attainers overall. The higher performance of students in London is often attributed to the ethnic mix of the capital. The interaction of different factors on the performance of high attainers, such as location and ethnicity, are explored in the multivariate analysis carried out in section 4.4.

Figure 12: KS4 performance of disadvantaged high attainers by region
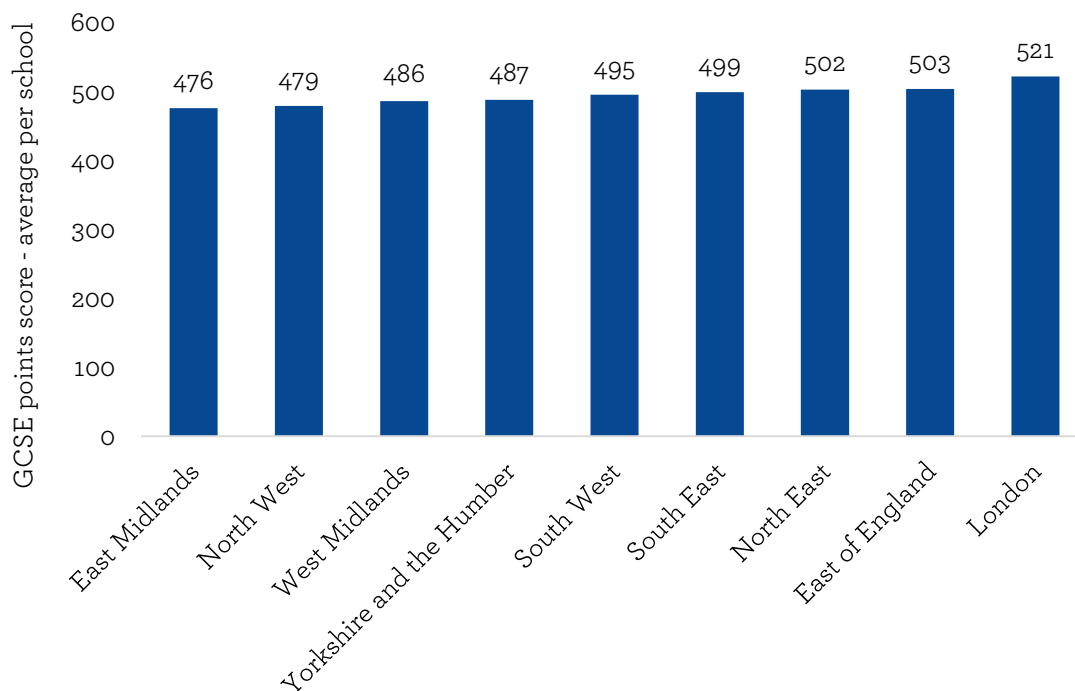
No differences were found in the total GCSE points scores of high attainers by the religious character of their school. However, students in both single gender girl or boy schools had higher attainment on average per school than their counterparts in mixed gender schools. High attaining pupils had a total GCSE points score on average per school for all girls' schools of 546, per all boys' schools a slightly lower average of 532, and mixed schools had an average of only 523. Similar differences were found for high attainers from disadvantaged backgrounds, with the gap in attainment between groups similar across school types (Figure 13).

Figure 13: KS4 performance by gender on entry admissions policy
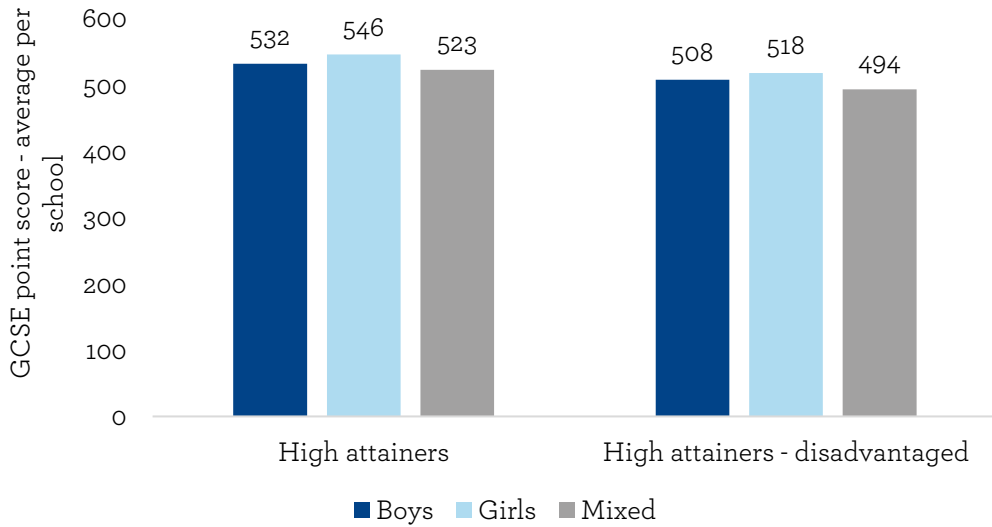
The proportion of students who are FSM eligible in a school is also associated with the performance of high attainers within that school. Schools with the lowest proportion of students eligible for free school meals have a GCSE points score of 549 on average for high attainers per school, compared to just 498 in schools with the highest proportion of students who are FSM eligible. For high attainers from disadvantaged backgrounds, the difference is still present but less stark, with high attainers in schools with the lowest proportion of FSM eligible pupils gaining on average 515 points, compared to 488 in schools with the highest proportions. For schools with the lowest proportion of FSM eligible students, the difference in performance of high attainers overall, and high attainers from disadvantaged backgrounds was 33 points, but for students in schools with the highest proportions of FSM students, this difference was only 10 points. (Figure 14).

Figure 14: KS4 performance by quintile of free school meal eligibility in school
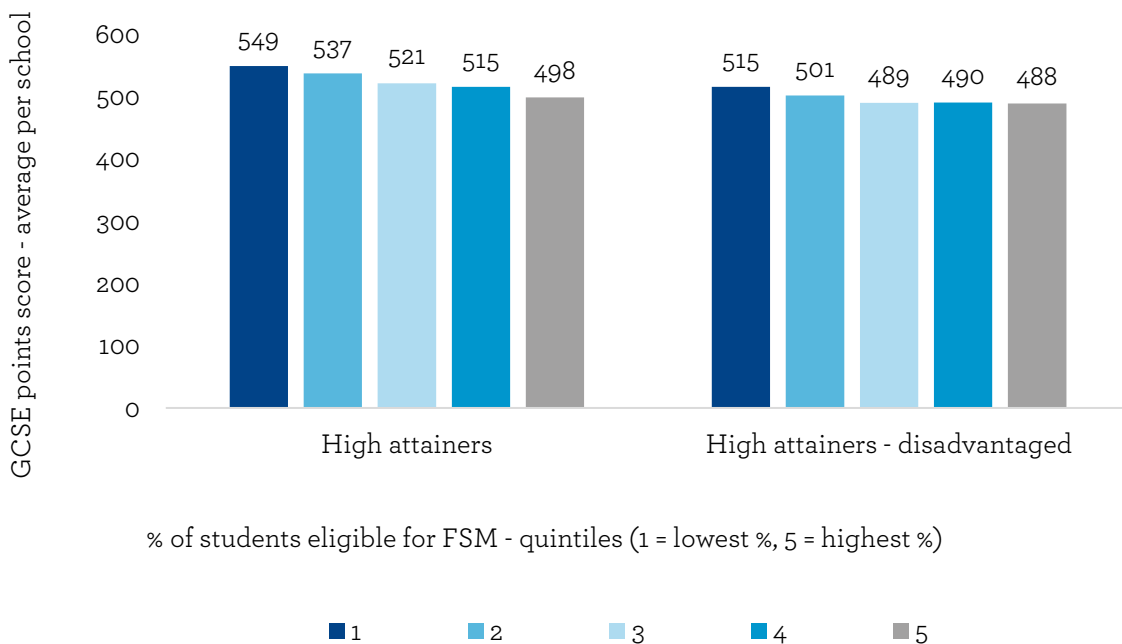
The proportion of students in a school's intake with previous high attainment is also associated with higher attainment at GCSE. High attaining students in schools with the lowest proportions of high prior attainers score have GCSE points scores of just 492 on average per school, compared to an average of 550 for schools with the highest proportions of previous high attainers. The same association is also found for high attainers who are disadvantaged, who score 475 on average in schools with the lowest proportion of high prior attainers, compared to 513 on average in schools with the highest proportion (see Figure 15).

Figure 15: KS4 performance by quintile of high prior attainers in school
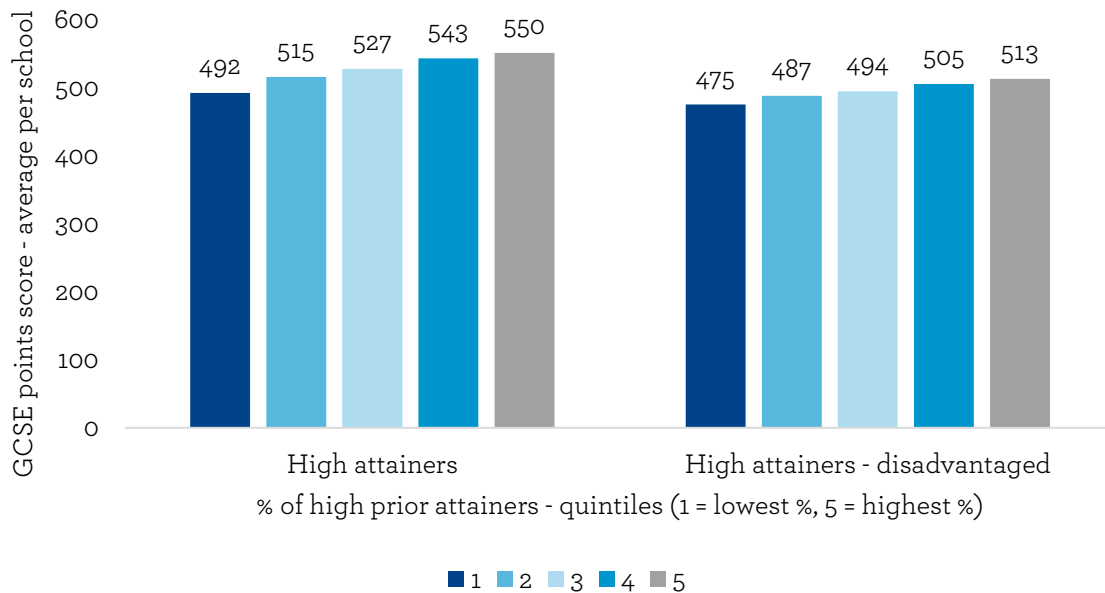
The percentage of students with English as an additional language in a school was not associated with the attainment of high attainers overall, but was for higher attainers from disadvantaged backgrounds. For this group, students in schools with the highest proportion of higher attainers had an average GCSE points score of 511 per school, compared to 493 for students in schools with the lowest proportion (see Figure 16).

Figure 16: KS4 performance by quintile of EAL students in school

Percentage of students with English as an Additional Language (EAL) - quintiles
(1=lowest %, 5 = highest %)
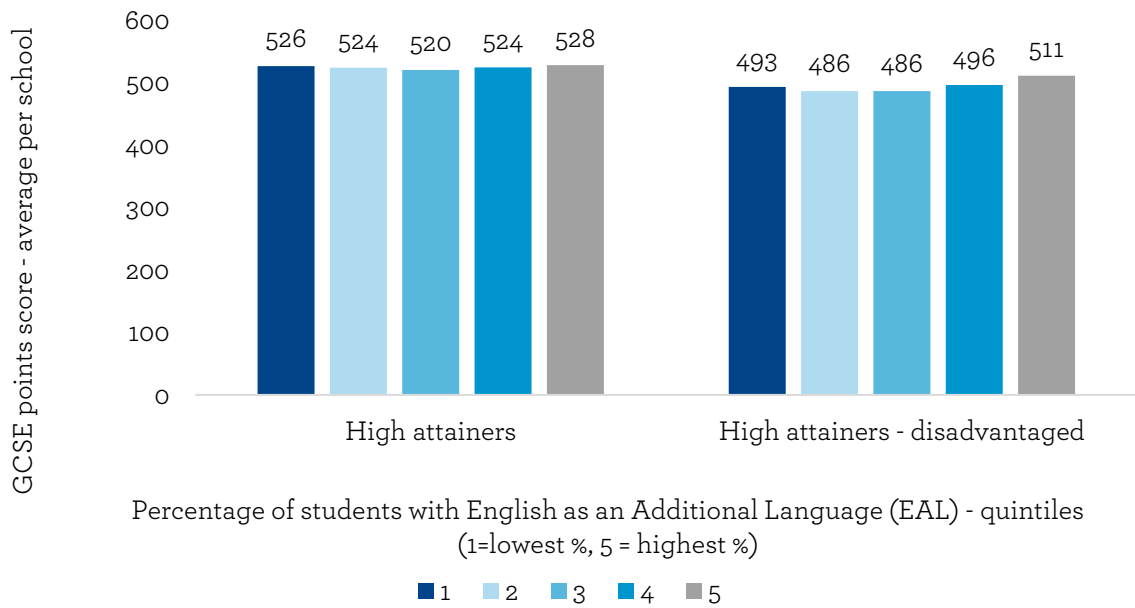
Schools with higher proportions of high attaining BAME students had slightly higher GCSE point scores for high attainers, this group achieving on average 19 more points in schools with the highest proportions of high attaining BAME students. The difference is more pronounced for disadvantaged high attainers, coming to 38 more points (Figure 17). Looking at breakdowns by specific ethnicities, high attainers in schools with higher proportions of Asian high attaining students achieved on average 13 more points than high attainers in schools with lower proportions of this group, and high attainers from disadvantaged backgrounds achieved 28 more points on average. This is consistent with Figure 8, which shows the high scores of Asian disadvantaged pupils. However, the same pattern was not seen when examined by the proportion of black high attaining students in a school.

Figure 17: KS4 performance by quintile of high attaining BAME students in school

% of students who are high attaining BAME - quintiles (1 = lowest % 5 = highest %)
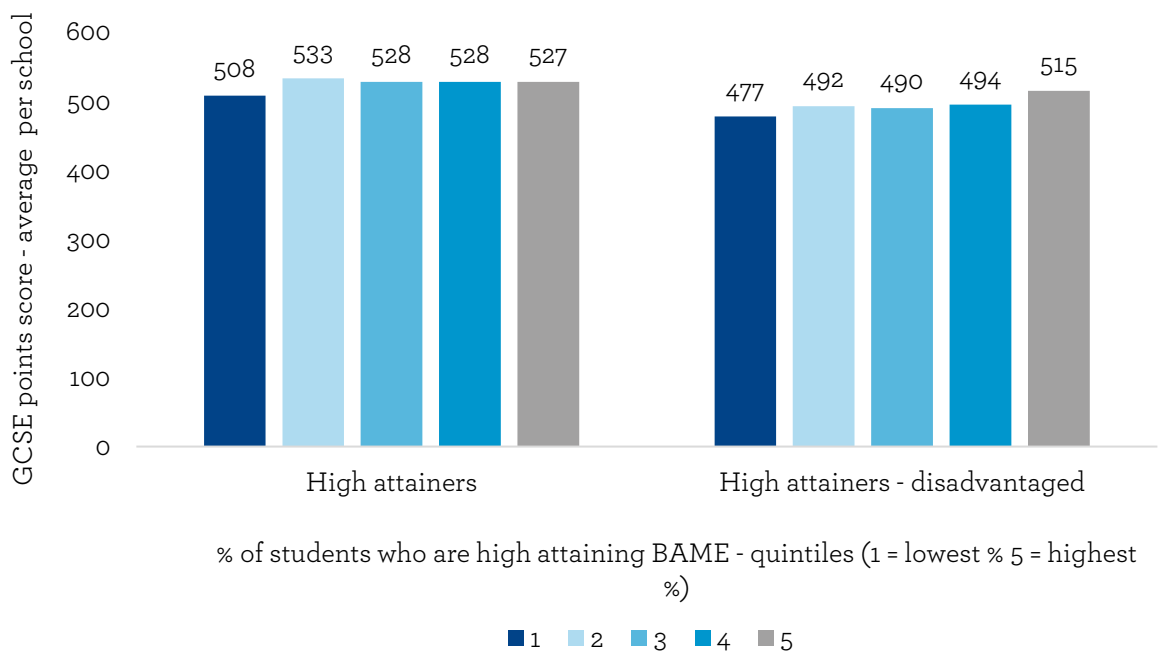
4.4 Multivariate analysis on the factors associated with high attainment

While the analysis so far has looked at how various characteristics relate to success at GCSE, many of the factors potentially overlap in terms of their influence on results. To look more closely at the factors associated with higher GCSE performance among students with previous high attainment, regression analysis was also performed. This allows us to better discern the most important school characteristics, while accounting for as many factors as possible.

Factors were added to the regression model in three stages; school characteristics: whether it was a grammar school, school type (academy/LA maintained), faith status, and a binary indicator for schools located in London. The second stage consisted of factors regarding school composition: whether the school was single sex, the proportion of pupils eligible for free school meals, the proportion of BAME pupils in the school and the proportion of EAL pupils in the school. The third stage added factors specifically relating to highly able pupils in the school: the total number of highly able pupils, and the proportion of high attainers who were BAME.

These factors were then tested for their relationship with the average GCSE points score over the three cohorts covered by this report. This was performed separately for all high attainers, and for disadvantaged high attainers.

4.4.1 All high attainers

Table A1 outlines the results of the first regression. In the first stage, grammar schools, converter academies (compared to LA schools), and London schools (compared to all other regions) were associated with higher GCSE point scores. Pupils in sponsored academies did worse than LA maintained schools, and faith status had no effect. This model accounted for 11.6% of the variance (difference) in GCSE scores between schools.

When the school composition factors were added, the model now accounted for 20.8% of the variance in school level scores. Schools with higher proportions of FSM pupils did worse, and schools with higher BAME proportions did better. Even accounting for the higher proportions of ethnic minority pupils in London, schools in the capital still did better on average. Notably, the introduction of school composition factors meant that grammar schools and sponsored academies were no longer significantly different from other schools. Boys' and mixed schools were no different from girls' schools, accounting for other compositional factors.

Adding the factors relating to highly able pupils specifically only added a small amount to the overall power of the model, now explaining 23% of the variance in scores. Accounting for all factors, the proportion of EAL pupils in a school was more strongly related to GCSE scores than the proportion of BAME pupils. Schools with more highly able pupils also performed better for those pupils. While the final model suggests that pupils in grammar schools actually do less well than would be expected, given the concentration of high attainers in those schools, this should be interpreted with caution, given the very different prior attainment patterns within comprehensive and grammar schools.

Accounting for all factors, the characteristics associated with higher GCSE scores were; the number of high attainers in the school, schools with lower proportions of FSM pupils, schools with higher proportions of EAL pupils, London schools, and converter academies.

4.4.2 Disadvantaged high attainers

Table A2 outlines the results for the regression looking specifically at the GCSE scores for disadvantaged highly able pupils. The factors included here explained even less of the variance in scores: only 11.6% for the final model. Patterns were in general the same as for all pupils, with converter schools, London schools, schools with fewer FSM pupils, schools with more EAL pupils and schools with more highly able pupils doing better. However, schools who had more BAME disadvantaged high attaining pupils did better, as did schools who had more disadvantaged high attainers, over and above the effect of having more high attainers overall. Unlike the 'all high attainers' group, attending a faith school was also associated with higher scores for this group.

For high attainers of both advantaged and disadvantaged backgrounds, while the type and location of school influence the attainment of highly able pupils, it is notable that the composition of the school, in terms of disadvantage, ethnicity and EAL status account for much of these differences. Furthermore, particularly in the case of disadvantaged high attainers, the school factors here as a whole accounted for a very small proportion of the differences in scores across schools. The factors here only encompass what schools are, where they are located, and who attends them. What individual schools actually do can be much more important. The next section explores this in more detail, looking at in depth examples of schools whose disadvantaged high attainers have performed particularly well.

5. Case study schools

To gain some insight into the approaches currently being used by English schools to support the highly able, the following section explores practices that are in place in schools with above average attainment outcomes for both their highly able, and their disadvantaged highly able students. While the practices themselves have not been evaluated here, many of them are supported by the evidence outlined in sections 2 and 3 of this report, and are likely to be of use to other schools who hope to support this group of pupils. A range of the schools questioned from across England have been featured as in-depth case studies, to give a more detailed picture of schools which are representative of good practice.

5.1 Identifying highly able students

Each of the schools who responded to the questionnaire had a unique definition for highly able students. Some schools identified only students with academic high attainment, while others had highly able groups in a wider range of areas, for example in subjects such as physical education or music, and some had a variety of different groups of highly able students (see case study 1). One school stated that when identifying highly able pupils, it focused on finding students who can *"learn concepts, not just learn to the test"*. Some schools identify students across their school, while others had departmental or subject specific lists of highly able students. The schools questioned used a variety of approaches to identify students, with common methods including SATs results from KS2, teacher identification, and the use of in-school administered cognitive ability and reading assessments. Schools often had multiple opportunities for highly able students to be identified, either re-assessing students continuously, doing so on a yearly basis, or re-assessing students at important stages (for example, before GCSE exams).

Case study 1: Cardinal Newman Catholic School

Cardinal Newman Catholic School is a voluntary aided Catholic comprehensive in Hove, East Sussex. In analysis for this report, highly able students from disadvantaged backgrounds at the school were found to have performed above the national average for all highly able students in each of the three years examined (2016, 2015 and 2014) - measured here by GCSE average point score. Additionally, 88% of the school's highly able disadvantaged pupils were found to have achieve at least 5A*-A at GCSE. The school had a proportion of FSM pupils just above the national average of 14% in all three years included in this report.

Identifying highly able students

The school identifies several different groups of highly able pupils. In Year 7, students who have achieved in the top 10% of KS2 grades in the school's year group are included in the "Able and Talented" group; students who have achieved at least a Level 5 in English and maths are included in the "High Prior Attainers" group (from 2017, this has been updated to students who score at least 330/360 in their three KS2 tests). In addition to the use of KS2 results in core subjects, the school also continues to monitor students to identify those who are highly able in other subjects. Students who are identified as gifted in a subject other than English or maths during their time at the school are included in a "High Attainers" group. High attainers are classified by subject teachers as pupils who in their subject master content easily and transfer their insights to new problems; make connections between past

and present learning; work at a level beyond that expected for their age group; produce original and creative responses to common problems; or who show curiosity, ask questions and enjoy engaging in debate or discussion. The school also identifies which students in each of these groups are either currently eligible for FSM, or have been in the last six years.

Staff responsibility

The assistant headteacher is designated as the staff member responsible for highly able students. Additionally, each department has its own member of staff responsible for those pupils – termed as "Able and Talented Leads" (ATLs). ATLs meet each half term to share good practice with one another and to represent the interests of highly able students. This group of teachers lead the training of other staff members on how to challenge and accelerate the learning of highly able students. The current assistant headteacher, Peter Shears, stressed that ensuring lessons are challenging is important for all pupils, not only those who are highly able.

Interventions

In all lessons and across the school, teachers are expected to demonstrate several of what the school terms "key elements", which include giving high quality feedback and challenging questions to students. Mr Shears added that "although all students benefit from lessons which have these elements at their core, they are particularly beneficial in ensuring our Able and Talented students are continually challenged and their learning accelerated". The school offers additional classes after school for pupils in Year 9 and 10, in subjects including Latin, maths and additional maths. Pupil premium students are actively encouraged to attend these extra sessions.

Some of the school's pupil premium funding is targeted to specifically support highly able disadvantaged students. This includes use of pupil premium funding to subsidise trips to Oxford and Cambridge universities and to subsidise trips to cultural activities such as visits to the theatre. The school also uses the funding to purchase text books and other materials for highly able disadvantaged students, and to fund the provision of intervention classes in subjects such as English and maths for disadvantaged students who are falling behind.

The school runs a variety of extracurricular activities to stretch highly able pupils. An after-school debate club is attended by able and talented students in Years 10, 11, 12 and 13, who take part in national competitions. Mr Shears commented that "debating is particularly successful as an after-school activity for Able and Talented students. We run a model in which Year 11 and Year 12 students coach younger year groups. We also enter students for the Oxford Schools and Debating Matters competitions, which are highly effective as a means of providing able and talented students with challenging and thought-provoking opportunities for debate and discussion which go beyond the demands of the curriculum."

To provide support for disadvantaged and highly able pupils in career choices and applications to university, Cardinal Newnham Catholic School works with several organisations, including IntoUniversity and Brightmed. IntoUniversity provides support for disadvantaged students thinking about or applying to university, and runs a series of day long workshops in the school for pupils in Year 10 and 11. The school also offers highly able students support through involvement with Brightmed, a project run by the Brighton

and Sussex medical school for state school students in Years 8 to 11. Brightmed run programmes aimed at highly able students with no prior family experience of higher education. In their programmes, Brightmed teach students about careers in medicine, give students practical experience, and advise on the grades student will need to gain a place in medical school.

5.2 Staff responsibility

Several of the schools reported that they have a member of staff, often termed a 'highly able coordinator' (see case study 2), specifically responsible for highly able students. In many schools, this staff member was part of the senior leadership team, often a deputy headteacher. Schools' highly able coordinators were reported to perform a wide range of tasks, including the sharing of best practice across the school, organising staff training, and following up with teachers if highly able pupils are found to be falling behind. Some also ran information evenings for the parents of highly able students.

A number of the schools questioned had another additional staff role, which they termed 'pupil premium manager', with responsibility for students eligible for that government grant. Pupil premium managers were sometimes members of teaching staff, but in other cases were separate non-teaching members of staff – whose sole role was to support pupil premium students and manage the spending of pupil premium funding. Schools with this member of staff reported that they had a key role in supporting highly able disadvantaged students, by closely tracking their progress, and putting in place targeted interventions (such as additional tutoring), if they were found to be falling behind.

Case study 2: Hatch End High School

Hatch End High School is a comprehensive converter academy in Harrow, Middlesex, an outer London borough. In analysis for this report, highly able and disadvantaged students in the school were found to perform above the national average for all highly able pupils - as measured by GCSE average point score - in each of the three years examined. Additionally, over the same three years, 90% of the school's disadvantaged highly able students achieved at least 5A*-A at GCSE. In this time, the school also had well above the national average of pupils eligible for FSM, with roughly 40% of pupils at the school being FSM eligible.

Identifying highly able students

The school has three main categories of highly able students; Higher Attaining Pupils (HAPS), More Able pupils, and Most Able pupils. HAPs are students who have achieved Level 5 or above (or from 2017, above the national average of 110) in either English or maths at KS2. The More Able group of students includes HAPs, but also includes two other sets of students – those who meet the criteria for high attainment in four or more subjects, and students who score highly (a mean score above 115) in externally verified Cognitive Assessment Test (CATs). Students identified as Most Able are those who have achieved at least Level 5 in both English and maths as KS2, and who also have been identified as high attaining in at least four subjects at the start of the year. Heads of department receive a list each year of students in each of these three categories, and More Able students are marked out on the school register for each teacher.

Whether a student is highly able in a specific subject is assessed by their teacher each year. Teachers are given both whole school generic training in the identification of highly able students and subject specific department training in identifying this group of students. Assistant headteacher David Robinson added that "this is particularly important for subjects like Drama, Art and PE, as students could have low prior attainment in English and maths at KS2, but be highly able in their subject area." More able disadvantaged pupils are also separately identified and monitored. If this group of students begin to fall behind their expected level of progress, interventions are put in place to ensure they don't continue to fall behind. Students who need support in a specific area are grouped together, and students are given additional sessions after school and during the school holidays. The school also brings in outside expertise from tuition agencies to help struggling pupils.

Staff responsibility

The school has several measures in place to ensure that best practice for highly able students is adopted across the school. Mr Robinson oversees the provision for highly able students, and is aided by an additional member of staff designated as the school's 'more able co-ordinator'. The more able co-ordinator is tasked with ensuring that enrichment opportunities for the More Able exist across the school, and works with departments to monitor and enrich provision for this group of students. Staff members deliver workshops to one another on best practice to support highly able students, and heads of departments network with their counterparts in other schools to compare best practice for the highly able. When discussing their interventions for highly able students, Mr Robinson remarked that "at every opportunity, research and evidence-based practice guides everything that we do. We want our initiatives and interventions to have the maximum impact on student outcomes".

Interventions

Many of the initiatives the school has in place for the highly able are open to and benefit all their students, not only the highly able. For example, the school's KS3 students are required to complete homework books each week - each of which includes an optional challenge section designed for highly able students, but which is available for any student to complete if they can do so. The school uses setting in a small number of subjects including maths and science, but most classes in the school are in mixed ability groups.

Older pupils act as mentors for younger students, as part of a peer mentoring programme which is run throughout the school. This programme is open to all students, but student mentees who have been identified as 'more able' are matched with older more able mentors, and the pair are also matched on subject preferences, allowing older highly able students to give tailored advice to their younger counterparts. Similarly, the school's parental engagement sessions – sessions designed to share strategies with parents to put in place at home to support their child - are available to parents of all students, but are adapted for highly able students - with additional sessions for the parents of this group on how to further challenge and support their child.

The school works with several external organisations to provide enrichment opportunities to students. These activities are also available to a range of students, but are likely to be beneficial for the highly able - and are often targeted at this group. Organisations the school

works with include the journalism charity Student View, and debating charity Debate Mate. Student View runs programmes in schools to teach students about journalism, and give pupils the chance to publish articles online. Debate Mate requires any school it works with to have above the average proportion of students qualify for pupil premium, and requests to schools that at least 30% of the students in any group they work with are pupil premium eligible. The charity run debating workshops after school which are taught by university undergraduate students, designed to develop student's speaking, listening and critical thinking skills. To ensure that disadvantaged pupils have access to the range of activities taking place at the school, during KS3 and KS4, the school makes sure that at least 50% of the student's taking part in any initiative are from a low-income background.

Hatch End High School also offers support for university applications and help for students going into the job market. The school runs mock interviews for Oxbridge, and has support for the transition to higher education from students at LSE and UCL, who visit the school to speak to Year 10 and 11 students. Additionally, the technology company Dell has been into the school to run a series of workshops with Year 12 pupils entitled "Powering potential" – covering CVs, body language and tips to prepare for an interview.

5.3 Interventions

Schools examined here work with a wide variety of external organisations to put in place additional interventions for the highly able, such as the Brilliant Club (see case study 3), which while not limited to the highly able, was often used by schools to stretch and challenge this group. Other organisations which schools works with included debating organisations such as Debate Mate, mentoring programmes, leadership programmes and university access programmes including those organised by the Sutton Trust and Realising Opportunities. Debate Mate works in schools with an above average proportion of FSM-eligible students, with at least 30% of students in any group the charity works with required to be FSM eligible. The charity works with students with a mix of abilities, but outside of its core programme it also runs bespoke workshops which are often targeted by schools at highly able disadvantaged students, supporting them to develop communication and leadership skills.

Case study 3: The Brilliant Club

The Brilliant Club is a charity which aims to widen university access for students from underrepresented backgrounds, set up in 2012 with the help of seed funding from the Sutton Trust. The charity's Scholars Programme gives students from non-selective state schools experience of the teaching and learning styles common at highly selective universities, by placing PhD students and post-doctoral researchers into schools to deliver tutorials. The programme is run with students between the ages of 10 and 18 years old. The length of tutorials and size of the groups working with a PhD tutor varies depending on the age of the students, but no groups contain more than six pupils per tutor.

The Scholars Programme runs seven tutorials, over the course of a term, during which the tutor typically spends half a day a week in a school to deliver their sessions. Students are also given weekly reading and writing assignments, help and support from their PhD tutor online, and two one-to-one feedback tutorials. At the end of the project, students complete an extended assignment, graded by their tutor. Students on the programme also have the

chance to visit two universities, with a graduation event included in the second visit - which can also be attended by the student's family and friends. At both university visits, students are also given a campus tour, and receive information, advice and guidance on applying and attending university.

Brilliant Club programmes are targeted primarily to assist under-represented students, such as those from lower socioeconomic backgrounds, but they are not limited to this group. The charity requires 55% of the students that a tutor works with to fulfil at least one of three - whether a pupil is eligible for pupil premium; lives in a deprived postcode; or has parents who did not attend university.[64] Having several criteria ensures that very few schools would be unable to put together a group of students who qualify, so disadvantaged students in areas with smaller numbers of such pupils are able to benefit. This approach also allows students who don't fulfil these criteria, but who do face other barriers to accessing highly-selective universities to take part. Additionally, if a variety of students from different backgrounds attend the programmes within each school, it may help to avoid any stigma for disadvantaged pupils taking part.

The Scholars Programme has been found to improve the likelihood that the participating students who take part go onto attend selective universities. Analysis carried out by UCAS for the Brilliant Club found that students identified as pupil premium eligible who have taken part in the Scholars Programme, are more likely to apply, receive an offer and progress to a highly selective university, when compared to a control group of similar pupils (matched for characteristics including ethnicity, postcode and prior attainment at GCSE). For every 30 pupils in the control group who progressed to a highly selective university, 54 Scholars programme graduates progressed.[65]

Several of the schools identified as high performing for disadvantaged highly able pupils in this project reported that they used pupil premium funding, at least in part, to help pay for the Brilliant Club programme. Information on how to take part in the Scholars programme is on the Brilliant Club website, and schools can contact their regional Brilliant Club contact for more information: http://www.thebrilliantclub.org/

Schools also reported putting on their own additional activities for their highly able students, for example additional language classes for non-curriculum languages (such as Chinese), or evening lecture series (see case study 4), and organising their own trips outside of existing programmes to visit universities. To fund some of these additional activities, several schools reported the use of pupil premium funding to pay for their disadvantaged and highly able students to take part. Pupil premium funding was also often used to pay for additional tuition for highly able disadvantaged students who were found to be falling behind, and to pay for revision guides for these pupils if they could not afford to buy the materials themselves.

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[64] The Brilliant Club. (2018) Going the Distance: Improving University Access in Rural and Coastal Areas.
[65] Mobility Commission, S. (2017) State of the Nation 2017: Social Mobility in Great Britain.

Case study 4: Belvedere Academy

Belvedere Academy is a single sex girls' comprehensive academy school in Liverpool. Before 2007, Belvedere was previously an independent school. From 2000 to 2005, the school took part in a pilot funded by the Sutton Trust and Girls' Day Schools Trust for Open Access, during which all places at the school were awarded on a means-blind basis, with fees either entirely or partially covered for students who could not afford full fees. During the pilot, the proportion of students eligible for free school meals increased to 32.8% of students. The school converted to academy status just over ten years ago; becoming one of the first independent schools to do so.

Highly able disadvantaged students at the school performed better than average for this group of pupils in all three years covered in this report. Half of the school's highly able and disadvantaged students achieved at least 5A*-As at GCSE during the three years studied here. The proportion of students at the school eligible for free school meals was above average in the three years covered in this report, with 22-28% of students eligible during this period.

Identifying highly able students

Highly able students at the school are identified in Year 7 and Year 11. In Year 7, highly able students are identified using test scores in English and maths from KS2. In Year 11, students who achieved level 7 or above in all subjects in Year 10 are identified as highly able. Teachers can access information on their students - including whether they have been identified as highly able, and whether they are eligible for FSM – using a programme called SISRA analytics, which is used by staff throughout the school.

Staff responsibility

A member of Belvedere Academy's senior management team is responsible for overseeing the achievement of highly able students overall, and there are also additional members of senior management with responsibility for highly able pupils in year 11 and in year 13. Staff throughout the school are trained in how best to stretch this group of students, with whole school training days held for staff on the subject, during which feedback is given to departments and to individual teachers. A team of teachers also run targeted workshops on how to cater to highly able students, to encourage the sharing of best practice throughout the school.

Interventions

A High Achievers programme is run as an after-school club for the highly able, which highly able students in Year 11 are encouraged to join. As part of this programme, staff deliver undergraduate style lectures to students, external visitors come in to run workshops, and students are taken on at least one university visit to experience a day in the life of an undergraduate. Previous subjects covered include 'The Value of Art', 'Quantum Mechanics and Parallel Universes' and 'Intelligence Explosion and the Long-Term Future of Artificial Intelligence'. Pupil premium funding is used to help to fund this programme for highly able and disadvantaged students, as well as for other school trips and visits for this group. For

students who are highly able in mathematics, the school runs additional maths classes to help stretch this group. Pupils are also set by ability in English, Science and Modern Foreign Languages, but all other classes are in mixed ability groups.

The school is involved with several initiatives to offer support to students applying to university or vocational training. The school sends students to two programmes designed to help students apply to top universities, Cambridge HE+ and Realising Opportunities. Cambridge HE+ is a yearlong programme run by the University of Cambridge for state school students, which includes academic extension classes, subject masterclasses and guidance on applying to university. Realising Opportunities is a similar programme run by a group of research intensive institutions, for students who are the first in their family to go to university. The programme provides university visits, as well as support to help students in the application process. The school also runs special sessions with sixth form students who are identified as potential Oxbridge applicants, and offers advice and support for students interested in degree apprenticeships with companies such as KPMG, Rathbones and Jaguar Land Rover.

Many schools reported that they offered extension tasks or additional support for pupils of all ability levels, including the highly able. For example, one of the schools added an extra 30 minutes to the school day, which is used as dedicated reading time for students of all abilities. Its headteacher said that:

"five years ago, we extended the school day for years 7, 8 and 9 pupils. These students now read for half an hour before school every day. We set them by reading age, those at the lower end of reading ability are then given lots of intervention to bring them up to speed, and the top end are stretched. In year 9, top readers will be reading A level set texts. Half an hour every day for 3 years adds up, and reading a large range of texts can help them with their university applications."

The additional reading gave a chance for highly able students to be stretched, whilst also offering the chance for pupils with lower attainment to have additional support with reading if required.

6. Next steps

Students from disadvantaged backgrounds fall behind their peers before they even start at school, and go on to be underrepresented both at leading universities, and later in access to the top professions. Making sure that disadvantaged students who are capable of high attainment fulfil their potential at school is a crucial part of breaking down these disparities. However, findings in this report demonstrate that highly able students from disadvantaged backgrounds are too often underperforming their capabilities, as these students are less likely to achieve top grades at GCSE, and make worse progress when compared to other students.

As section 4 of this report shows, it is clear that pupils from lower socioeconomic backgrounds, certain ethnic groups, certain parts of the country and going to certain types of schools face significant barriers to succeeding in school. National policy efforts in this area need to be focused on equalising the attainment of pupils from such backgrounds who are currently falling behind. However, there is substantial variation in school practice in this area, and thus a lot that schools can do to ensure that all their pupils have the chance to fulfil their potential.

So how best to go about improving the outcomes for the highly able? The majority of this group, and especially those from disadvantaged backgrounds, attend comprehensive schools, with most schools only having very small numbers of such students. Accordingly, any interventions for the highly able should be targeted first and foremost at comprehensive schools, and be designed to work even for only a small group of the highly able, which may sometimes require pooling students across schools.

This report summarises the available evidence on how best to support the highly able. However, more evidence is urgently needed, especially on how best to prevent disadvantaged highly able students from falling behind. In April 2018, the Sutton Trust welcomed the government announcement of the Future Talent Fund, a £23 million programme (including £18 million of government funding), to test new ways of supporting this group. The programme aims to fund projects in areas including mentoring and tutoring, enrichment activities and parental involvement, all of which are highlighted as areas of promise in this report. It is now vital that going forward, the government ensures that the fund is properly delivered, trials are robustly evaluated, and that findings from the work are promoted to and implemented in schools across England.

There is also more that can be done in the school accountability system to help the highly able. In 2013, Ofsted committed to several changes, including to: focus more closely in inspections on the teaching and progress of the highly able; consider in more detail how well the pupil premium is being used to support highly able students from disadvantaged backgrounds; and to report findings on the highly able more clearly in inspection reports.[66] While Ofsted do now routinely comment on a school's provision for the highly able, in their 2015 update, they admitted that the organisation still needed to do more on use of the pupil premium to support disadvantaged highly able students.[67] This is still not routinely commented on in Ofsted inspection reports, and doing so has the potential to improve the practice of schools in this area. Additionally, while the government does publish school level data on the performance of previously high attaining students (those in the top third at KS2), they do not publish data for students with high attainment who are also disadvantaged, which would increase the

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[66] Ofsted. (2013) The most able students - Are they doing as well as they should in our non-selective secondary schools?
[67] Ofsted. (2015) The most able students: an update on progress since June 2013 - GOV.UK.

accountability of schools for the performance of this group, who we have identified as particularly vulnerable to falling behind.

Even with the limited evidence available, there are steps that schools can take now which are likely to be beneficial for the highly able. Many of the schools which were found to be successful for this group shared best practice both within their own school, and between schools. This is a good method by which to get in place promising interventions before more detailed evidence is available. Schools can use the representative best practice highlighted in this report as a starting point if have no such partnerships currently, but should seek to develop the sharing of best practice with other schools, for example by pooling expertise across local authorities and multi academic trusts. As schools with a higher proportion of high attaining students tend to do better for these students, and many schools have very few, sharing expertise between schools is crucial.

An additional challenge is how to make sure that any new interventions, programmes or practices for the highly able are implemented across a school. Many of the schools featured as case studies here have in place a highly able coordinator for this purpose; a designated member of staff, usually someone in the senior leadership team, who is responsible for the attainment of the highly able. However, The Education Endowment Foundation's report, *Putting evidence to work: A school's guide to implementation,* recommends that teams of staff are given responsibility for implementation of new policies and practices, rather than having only one staff member hold responsibility.[68] In busy everyday school life, it can be difficult for one staff member to make the investment of time necessary, and multiple teachers can bring a variety of different skills and viewpoints to the challenge. Additionally, having multiple staff members involved means that implementation can stay consistent over time, even if some teachers move on. Schools should put in place a team of highly able coordinators, of different seniority levels, with collective responsibility for the highly able.

Although there is not currently much available evidence on extracurricular activities for the highly able, they are often used by schools to stretch and challenge these students. Additionally, previous work by the Sutton Trust has highlighted their potential to boost essential life skills, and facilitate both academic attainment and future success. To ensure that students of all backgrounds have access to high quality extra-curricular activities, the government should introduce a means-tested voucher system, or encourage schools to do so, including extra-curricular activities and one-to-one tuition. Development of essential life skills should also be incentivised and rewarded in Ofsted inspection criteria, as they have the potential to help all students.

Access to high quality teaching is crucial to the success of highly able pupils, for example by ensuring that students are properly stretched and challenged within lessons, and by ensuring targeted interventions are put in place for students who are falling behind their potential. However, disadvantaged students are less likely to have either teachers with experience or those who are subject specialists. How best then to recruit and retain high quality teachers in areas with higher proportions of disadvantaged students? Sutton Trust polling of teachers in 2016 found that 35% of teachers thought that increased pay or bonuses would encourage teachers to go to more challenging schools, and 33% thought that more free periods would do so.[69] Related strategies were announced in the government's recent social mobility action plan, which included efforts to reduce the workload of teachers, and higher retention payments

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[68] The Education Endowment Foundation (2018) Putting evidence to work: A school's guide to implementation.
[69] Sutton Trust. (2016) Teachers in advantaged schools are more experiences that those in deprived schools. Available at: https://www.suttontrust.com/newsarchive/teachers-in-advantaged-schools-are-more-experienced-than-those-in-deprived-schools/. (Accessed: 27th June 2018)

of £7,500 for maths teachers working in challenging areas.[70] The government should expand on these early steps, by increasing pay of teachers in deprived areas in additional subjects, and by guaranteeing teachers in those areas more free periods to use for greater lesson planning and for professional development. Without real action, such as the steps outlined here, too many highly able students from disadvantaged backgrounds will continue to fall behind their potential.

About the report

Dr Rebecca Montacute is Research Fellow at the Sutton Trust.

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[70] Department for Education. (2017) Unlocking Talent, Fulfilling Potential.

Appendices

Table A1: Regression models - All highly able pupils

	Model 1: School characteristics		Model 2: + School composition		Model 3: + Highly able composition	
	Unstandardized Coefficients		Unstandardized Coefficients		Unstandardized Coefficients	
	B	SE	B	SE	B	SE
(Constant)	517.149***	1.820	555.068***	4.748	536.001***	5.161
Grammar school	33.941***	4.343	7.320	4.881	-22.097***	5.859
Faith school	6.441*	2.514	0.079	2.425	0.291	2.397
Converter academy (reference: LA school)	18.528***	2.295	9.372***	2.243	7.868***	2.220
Other school type (ref: LA school)	-6.578	3.760	-5.551	3.562	-4.620	3.517
Sponsored academy (ref: LA school)	-22.793***	3.046	-6.105*	3.044	-4.900	3.009
London school	18.172***	2.840	16.232***	3.347	13.691***	3.347
Boys school (ref: girls school)			-13.427*	5.411	-10.804	5.349
Mixed school (ref: girls school)			-4.338	4.005	-5.520	3.955
Proportion of FSM in school			-1.436***	0.081	-1.080***	0.090
BAME proportion in school			0.293**	0.094	0.159	0.112
EAL proportion in school			0.283*	0.118	0.367**	0.121
Number of highly able in school					0.305***	0.034
BAME proportion of highly able					0.473	9.589
R	0.34		0.456		0.479	
R square	0.116		0.208		0.230	
SE	52.19102		49.42530		48.77000	

Note: * = p<.05, ** = p<.01, *** = p<.001

Table A2: Regression models - Disadvantaged highly able pupils

	Model 1: School characteristics		Model 2: + School composition		Model 3: + Highly able composition	
	Unstandardized Coefficients		Unstandardized Coefficients		Unstandardized Coefficients	
	B	SE	B	SE	B	SE
(Constant)	481.758***	2.528	506.636***	6.874	486.157***	7.782
Grammar school	43.144***	6.148	25.757***	7.094	-4.627	8.692
Faith school	14.423***	3.584	10.386**	3.572	10.024**	3.545
Converter academy (reference: LA school)	14.898***	3.242	10.146**	3.302	8.842**	3.288
Other school type (ref: LA school)	-6.753	5.402	-5.016	5.317	-4.458	5.281
Sponsored academy (ref: LA school)	-17.560***	4.349	-6.167	4.514	-4.396	4.498
London school	32.053***	3.950	20.275***	4.666	12.811**	4.824
Boys school (ref: girls school)			-9.927	7.974	-6.283	7.931
Mixed school (ref: girls school)			-5.342	5.833	-4.406	5.800
Proportion of FSM in school			-0.987***	0.119	-0.762***	0.146
EAL proportion in school			0.793***	0.094	0.583***	0.112
Number of highly able in school					0.227***	0.059
Number of disadvantaged highly able in school					1.016*	0.444
BAME proportion of highly able					14.177*	5.936
R	0.272		0.325		0.347	
R square	0.074		0.106		0.120	
SE	73.28468		72.08113		71.52711	

Note: * = p<.05, ** = p<.01, *** = p<.001

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