



Unpicking White Rainbows

The understanding performance in sixth
form colleges project report 2014
Nicholas Allen

June 2015



SFCA works to lead and support a thriving and sustainable Sixth Form College sector by being an effective advocate, adviser and information provider for members and a reliable and authoritative source of insight, data and expertise for policy-makers and opinion-formers.

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Introduction

Add all the colours of the rainbow together and you get white. A rainbow is then, on average, white: and that average disguises all that is beautiful, complicated, interesting and diverse about the rainbow.

Attempting to boil down what goes on in a college to a single number is somewhat similar. While overall performance at a college may be good, that 'goodness' will disguise significant variation in student experience, and contrasting performance across different courses, at different levels of prior attainment and between different groups of students. Unpicking the white rainbow is, in essence, the guiding principle behind the development of the six dimensions reports: looking to unpick different strands of performance, and separating out the different threads that make up the student body. The same goes for the sector as a whole. Knowing what average performance is tells us little of the constituent parts that make up that average: about individual colleges that may need support, or about groups of students that are underperforming across the sector.

The standard six dimensions reports now illuminate eight different aspects of performance and allow colleges to explore various aspects of performance at college and at subject level. To the standard subject and qualification type reports we have added equality and diversity monitoring reports, exploring performance by gender, ethnicity, learning difficulty and disability, prior attainment band and socio-economic group.

While the college reports have been concerned with unpicking white rainbows, the overall project has been concerned with establishing what is normal as the backdrop to this analysis of variation.

The aims of the project report have always been to help colleges understand themselves better through the exploration of national performance, to give colleges insights that can be used with

students to help to foster ambition and realism, and to engage with the national accountability context to assist the SFCA in its lobbying work.

In this year's report, we examine the national context of Maths and English GCSE re-sit courses, we look at some of the features of highly successful students though an analysis of students gaining places at Russell Group universities, we reflect on changing performance in the sector over time and examine some of the emerging measures in the league tables.

The main section of this year's project report are

Engaging with the accountability context – one of the key proposals for the performance tables for 2016 outcomes (and January 2017 publication) is the introduction of a retention measure. We examine how fair such a measure might be.

English and Mathematics GCSE: in the programmes of study era performance in English and Mathematics GCSE has come in for much ill-informed scrutiny. We explore how performance in re-sit courses relates to prior performance in the subject being re-sat, and look at how performance varies across the sector.

So how are we all doing then: the maturity of the six dimensions model, and the data-set built up over the past six years allows us to conduct some intelligent analysis of how performance has changed over the years.

Great expectations: in this section we look at the performance of those students who gain places at Russell Group universities during the sixth form phase of their education, and look more generally at the relationship between attendance and outcomes.

Understanding and interpreting six dimensions reports: this section works through the full suite of six dimensions reports, exploring what each report is seeking to show, and how they might be interpreted.

None of this work would be possible without the support of the colleges that agree to contribute data and the MIS teams that put the data returns. As ever, I extend my admiration and thanks in equal measure.

Nicholas Allen, June 2015

Key Findings:

- There is a material danger that the performance tables' retention measure will misrepresent the quality of provision in a significant number of colleges, as it makes an adjustment for the prior attainment of students at a particular institution. There is a clear relationship between prior attainment and the rate of retention over a two year programme. (**Figures 1.0, 1.1, 1.4, 1.5**)
- The vast majority of colleges have very few students with a realistic chance of achieving the 'AAB in two or more facilitating subjects' measure (**Figure 2.1**)
- There is a clear relationship between performance in Maths and English GCSE re-sit courses, and prior attainment in that subject (**Figure 3.1, 3.3**)
- Performance in GCSE re-sit courses with students holding a D grade at GCSE vary widely between colleges (**Figure 3.2, 3.4**)
- Over the last three years, success rates for students with average GCSE scores of 5.8 and below have significantly improved. These students make up 43% of the AS level cohort (**Figure 4.1**)
- Students at sixth form colleges get similar grades to students with similar levels of prior attainment studying elsewhere in the post-16 sector. (**Figure 4.5**)
- At AS level and A level, students securing Russell Group places significantly outperform students with similar levels of prior attainment who do not secure places at the Russell Group. This is the case across the prior attainment spectrum (**Figures 5.1, 5.2, 5.3, 5.4**)
- There is a clear relationship between attendance and performance at AS level and A level (**Figure 5.5, 5.6**)

Engaging with the accountability context

“O, that way madness lies. Let me shun that”¹

In an era of massive funding and cost pressures and wholesale curriculum change, it would be easy to lose sight of changes in the accountability context. Colleges are pretty much attuned to how Ofsted is changing the focus, duration and nature of its inspections, but the changes to the Department for Education’s achievement and attainment tables have passed by more or less unnoticed. Perhaps it is the pressing nature of other concerns, and the reasonably long lead time (the new measures are not intended for publication until January 2017) that have distracted us. But the emerging accountability measures are important for two distinct reasons. Firstly, the league tables themselves play a huge role in shaping the discussion about where the best schools and colleges may be found: in the eyes of the press, in the eyes of the public. Secondly, and, in time, perhaps more importantly, Ofsted are expected (by the government at least) to use these measures as the heart of the evidence base about outcomes for learners in inspection. If the new measures are not fit for purpose, we should be very concerned indeed.

Retention

Perhaps the most overdue element of the revamp of the achievement and attainment tables is the introduction of a measure of student retention. In some ways this is to be welcomed as, for the first time, it will introduce a form of accountability that highlights the extent to which students at schools successfully complete their programmes of study. For colleges, success rates have provided this form of accountability for the best part of two decades, but it has long been suspected that the absence of such a mechanism in schools has allowed poverty of student experience to go unchallenged.

The detail of the methodology the Department for Education plans to use has been outlined in **16-19 Accountability Headline Measures: Technical Guide**². It is not entirely clear whether the Department is clear about the implications of its proposals. There are some curious features to the methodology, which might in turn create some perverse incentives. For example, a student starting four AS levels who passes all four AS levels, progresses to the upper sixth to study A levels, and leaves mid-year through the upper sixth is counted as not retained. So far so good: the measure seems to provide an honest mechanism to recognise the achievements of those schools and colleges where students reach the end of a two year programme of study. However, a student who starts the same four AS levels, drops three of them, and sits just the one exam at the end of the lower sixth before leaving is counted as being retained. By extension the student at a rather selective school who takes four AS levels, gets grade D in all of them and is refused entry into the upper sixth (and there are many schools that would place such a barrier between progression from AS to A level) is counted as retained. There will, we are told, be a separate measure capturing the proportion of AS students that return for an A level but this will not be one of the headline measures.³

¹ King Lear, Act III, Scene IV.

² **16-19 Accountability Headline Measures: Technical Guide** available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/359909/Technical_Guide_final_for_publication.pdf

³ See **16-19 Accountability Headline Measures: Technical Guide** (*ibid*) paragraph 7.8

There are some interesting implications here for the ways in which colleges choose to record student enrolments. If lower sixth students are placed on AS level programmes in the first instance, and then (as now) are put on A level programmes once AS results are available, then all students who leave between the lower and upper sixth would count as being retained. If students are put on two year A level programmes from the outset, those who leave between the lower and the upper sixth will count as being not retained. Using the data for students from the 2012-14 cohort in sixth form colleges we can model the implications of this. The advantage of recording AS level first and only recording A level in the upper sixth is approaching fifteen percentage points. What we may end up with, is a measure which measures the way you record programmes of study, rather than one that measures you successful you are with the students you take on. Of course this is all hypothetical: surely no-one would be tempted to enrol all students as doing AS levels in the first instance in order to avoid any statistical penalty. Not when Ofsted have been instructed to make significant use of the new league tables measures.

Putting aside concerns about the finer details and consequent incentives, there is a more fundamental reason to be concerned about the proposed retention measure, and that is that it takes no account of the prior attainment profiles of the students concerned. This should be a concern to any college that wants to ensure that its performance gets the recognition it deserves. These concerns will be accentuated for any institutions that are operating in a fiercely competitive environment, particularly those involving more selective colleges and school sixth forms.

To engage with this issue we can conduct an analysis that seeks to imitate the approach that the Department is intending to adopt, but makes the crucial intervention of factoring in the prior attainment of students. Our analysis takes the data from 57,628 students who started AS level programmes in sixth form colleges in September 2012. In order to avoid any distortions from students following mixed programmes, only students starting three or more AS levels have been included in the analysis. The Department's retention measure will count a student as being retained if they get to the end of one or more qualifications, whether they pass any of these qualifications or not. This analysis uses this approach too.

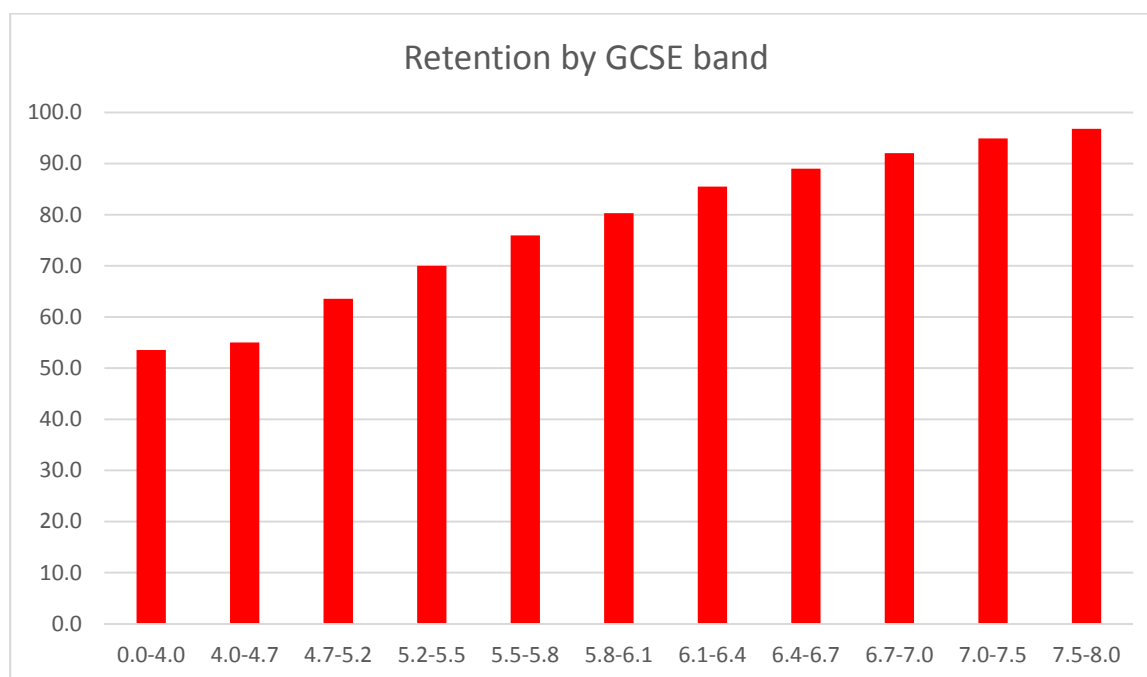
Figure 1.0 explores how the proportion of reaching the end of an A level programme varies by prior attainment. Students have been divided into eleven prior attainment bands, based on average GCSE score. We find that in the top prior attainment bands, more than 90% of students that start an AS level programmes reach the end of a two year programme of study. By the time we reach an average GCSE score of 5.8 to 6.1 (around straight B grades at GCSE) a full fifth are not getting to the end. For those students with an average GCSE score below 5.5, less two-thirds of students are successfully achieving three A levels.

Figure 1.0: Retention by prior attainment band: sixth form college 2012-14 cohort

GCSE Band	Started 3 or more AS levels	Completed at least one A level	Retention (%)
0.0-4.0	183	98	53.6
4.0-4.7	2280	1254	55.0
4.7-5.2	6915	4396	63.6
5.2-5.5	6577	4604	70.0
5.5-5.8	7940	6031	76.0
5.8-6.1	7601	6104	80.3
6.1-6.4	7287	6231	85.5
6.4-6.7	6246	5560	89.0
6.7-7.0	4566	4203	92.0
7.0-7.5	5468	5191	94.9
7.5-8.0	2565	2483	96.8

Overall, 80.1% of students that start AS level reach the end of A level study. **Figure 1.1** expresses the same outcomes graphically. Note how the proportion of students reaching the end of the programme of study decreases towards the bottom end of the ability range.

Figure 1.1 Retention by prior attainment band: sixth form college 2012-14 cohort

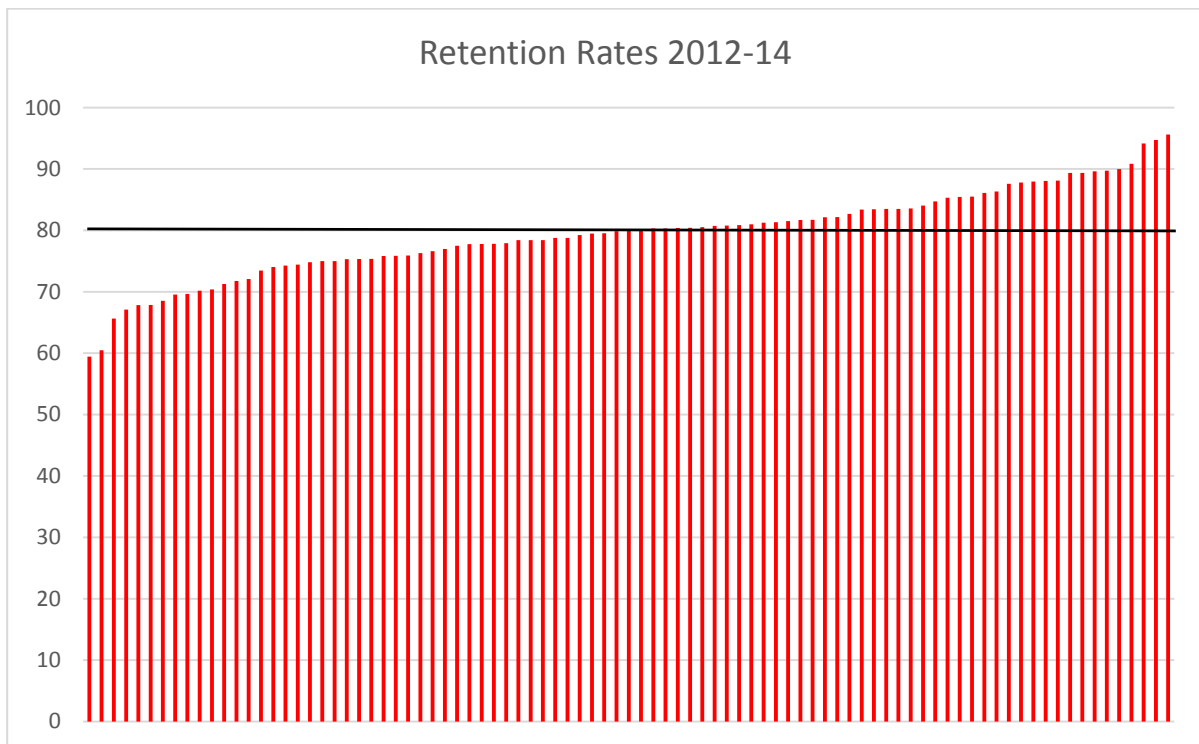


There is something very important revealed by **Figures 1.0 and 1.1**. Since the pioneering work done by the ALIS team in 1990s is has been accepted that there is a relationship between the grades that students achieve at GCSE and the grades that students get at the end of A level courses. What our data shows very clearly is that there is a similar relationship occurring at student level in terms of the likelihood of students reaching the end of their programmes of study. These are not trivial differences, and the implications for accountability are not trivial implications. There are colleges who draw their students almost exclusively from the top four prior attainment bands. We would expect these institutions to have a 90% retention rate. There are other colleges that draw their

students largely from the bottom four or five bands. These students have a retention rate of around 66%. To expect them to match a raw national average of 80.1% is a little unfair to say the least.

To tease out the implications of these patterns, we need to turn our attention to performance at college level. Figure 1.2 gives us the retention rates for each of the 89 sixth form colleges in the data-set. These are the 'raw' retention rates, and are the retention rates of students, not the retention rates on the qualifications they enrol on.

Figure 1.2 Retention rates in individual sixth form colleges: 2012-14 cohort



We can see in **Figure 1.2** that retention rates in individual colleges vary significantly. There are some colleges where retention is well above the sector average (80.1% - represented by the black horizontal line). Indeed, there are some where retention is above 90%. There are others where retention is far lower.

But what happens when we introduce prior attainment in the analysis, and instead of expecting every college to be at the sector average, we calculate a new *expected* retention rate based on the students a college is actually dealing with. If a college is dealing with relatively well qualified students, we should expect the college to have a higher retention rate than one dealing with more modestly qualified students.

Figure 1.3: Expected retention rates: sixth form colleges: 2012-14 cohort

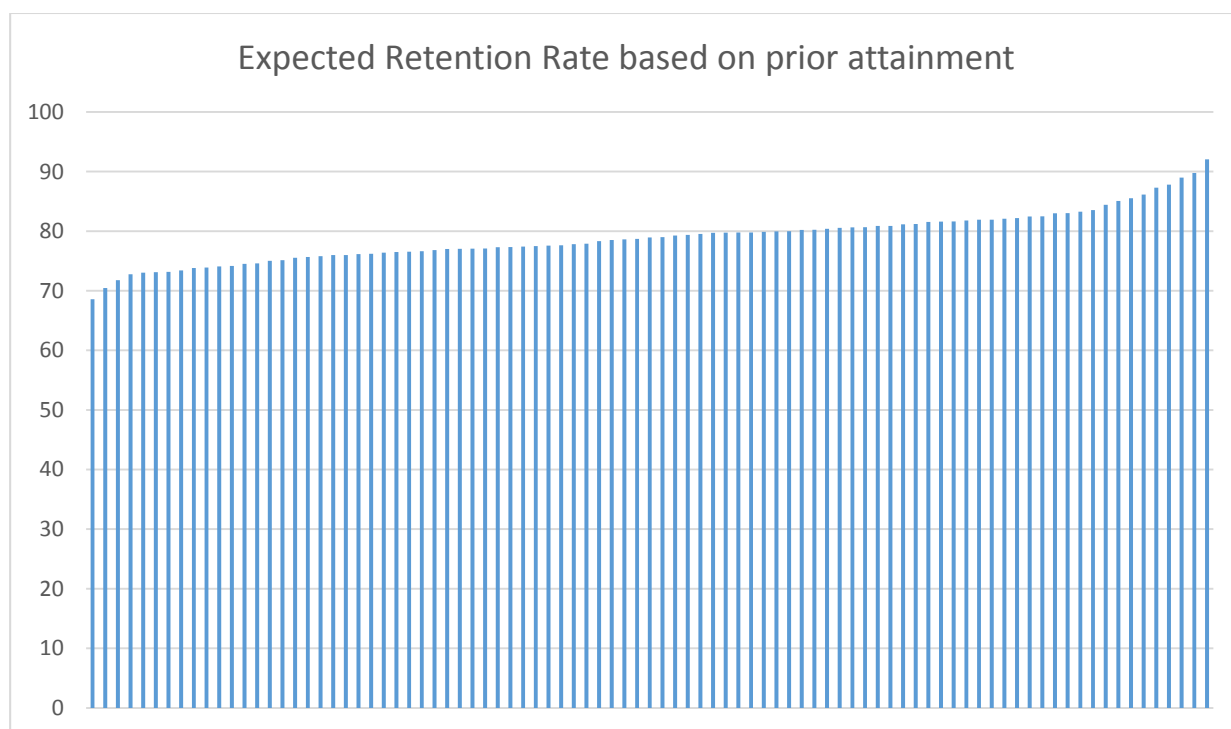


Figure 1.3 is based on an analysis which calculates an expected success rate for a college based on the prior attainment profile of the students concerned. Towards the left side of the graph we see the expected retention rates for the colleges dealing with students with more modest prior attainment profiles. The college with the most modestly qualified students is expected to have a retention rate of just under 70%, fully 10 percentage points below the sector average. At the other end of the scale, the ‘top’ college is expected to have a success rate of over 90%, again, over ten percentage points away from the average.

So what if both colleges have an actual retention rate of 80%? - one would be performing miracles, the other would be serving its students very badly indeed.

Here we see the intrinsic problem of using a national ‘average’ as the basis for accountability. It is the case that for many colleges using the national average is an entirely fair measure, but for those dealing with more challenging student populations with lower prior attainment profiles, it most certainly is not; and for those dealing with highly qualified students, it is not.

The uncritical use of these retention figures is dangerous: be it by the public, by the media, or by the inspectorate. We run the risk of failing to identify excellence, and of letting what should be areas of real concern pass unnoticed.

The issues we see with the sixth form colleges data-set will be amplified in schools. While a small number of sixth form colleges are selective, only one has an average GCSE score of 7.0. By contrast, a large number of schools are selective, and for in some cases they are seriously selective, with no students with less than straight A grades being allowed into the sixth form. There are some selective grammar schools with average GCSE scores of 7.8, suggesting the average student has achieved eight A* grades and two A grades at GCSE: the *average* student. Other schools have an average GCSE score of below 5.0. To subject schools and colleges to measures that take no account of the students they are dealing with is unjust, unfair and unhelpful.

One final analysis on retention can really highlight the nature of our concerns: looking at the relationship between how the model predicts colleges should perform and how colleges actually perform. For the sake of this analysis we can calculate and compare two different figures: The expected retention rate and the actual retention rate achieved at each of the sixth form colleges in the analysis.

Figure 1.4: Actual and expected retention rates: sixth form colleges



In **Figure 1.4**, each dot represents a sixth form college. The graph plots how the expected retention rates and actual retention rates for each college compare. The expected retention rate (what would be 'normal' if the students did as well as similarly qualified peers nationally) is plotted on the horizontal axis; actual retention is plotted on the vertical axis. One dot (which we will return to shortly) is coloured yellow. If this college had followed national patterns, it would have a retention rate of 85%, the actual retention rate is 81%. The black diagonal line running toward the top right hand corner represents where expected and actual retention rates are the same. If a college is above the black line it means that performance is above what would be expected. If a college is below the black line it means performance is below what would be expected. The blue diagonal lines represent 5% either side of this hitting the expected target. The colleges are also colour coded. The blue colleges are within 5% of what would be expected. The red dots are more than 5% above what would be expected, based on the prior attainment profiles of the students. The black dots are more than 5% below what would be expected. The national average retention rate is represented by the red horizontal line.

Figure 1.4 allows us to see how distorted a view a 'raw' retention rate would give. Take the example of the yellow dot mentioned earlier. This college has a retention rate of 81%. It is above the national average. However, when we adjust for prior attainment we find that this college is dealing with

rather well qualified students, and the model expects it to achieve a retention rate of 85%. It is performing 4% below what would be expected of similarly qualified students nationally. One might suggest that being 4% below national patterns is not much of an issue – but remember that we are dealing with whole students here. Assume for a moment that the college in question has 1,000 students starting AS levels each year. Four per cent is equal to 40 students failing to reach the end of their studies. These are not trivial numbers, and the consequences for the students are not trivial either.

Each dot on our graph tells a story, and each story is underpinned by the educational lives of real students. Some tell the story of performance in line with the national average that represents a triumph for the students concerned. Other dots represent significant underperformance. Using a raw national average causes us to celebrate colleges that we should not, and bewail others that do not deserve our opprobrium. If Ofsted really do what they are told this time, and place the achievement and attainment measures at the heart of what they do, the consequences could be far reaching indeed.

We can express the information in a rather more straightforward, but if anything more powerful form.

Figure 1.5: Raw and value added retention scores compared

		Value Added Retention score		
		Bottom Third	Middle Third	Top third
Raw Retention Score	Top Third		8	22
	Middle Third	8	14	8
	Bottom Third	22	7	

Figure 1.5 provides a test of how accurately raw retention rates identify the top, middle, and bottom third of colleges. The top row of data looks at those colleges that are in the top third for ‘raw’ retention scores. It shows how well these colleges perform when an adjustment for prior attainment is made. We see that once the adjustment is made, 22 of the thirty colleges are still in the top third. Eight, however have dropped to the middle third: the raw measure has incorrectly identified these

colleges as top performers. The middle third looks at those colleges who are, broadly speaking, in line with what happens in the sixth form sector. Look at what happens when we introduce the adjustment for prior attainment. Of the thirty colleges in this group, just fourteen remain in the middle once the adjustment is made. Eight of these colleges are now in the top third, eight are in the bottom third. The analysis of the bottom third shows a similar story. While no college are transformed to the top third, there are seven colleges that are promoted to the middle third.

It is those colleges in the middle that should, perhaps be the biggest cause for concern. While performance may be close to average in raw terms, the raw measure may be masking excellence, and it may be concealing inadequacy.

Overall, there is a one in three chance that a raw measure will incorrectly categorise colleges: thirty-one colleges change tertiles, once the adjustment for prior attainment is made. I would be very nervous about any accountability measure that had such a high fail rate, and extremely worried about an inspectorate that exhibited a failure to be curious about the measures it is being asked to use.

Accountability that takes no account of the ability of the students, is no accountability at all.

AAB in facilitating subjects

We can take a similar approach to the one we used to subject the retention measure to scrutiny to establish the validity of the ‘AAB in two or more facilitating subjects’ measure.

The achievement and attainment tables are based on students attempting two or more A levels. Our data-set yielded 48,688 students who met this condition. The data-set was divided into eleven prior attainment bundles, and student records were reviewed to select those who had achieved grades of AAB or higher, and then further reviewed to select those who had secured at least two of these grades in facilitating subjects.

Overall, 9.7% of students achieved the ‘AAB in at least two facilitating subjects’ standard. **Figure 2.0** examines how this relates to prior attainment. What we see here is a stark relationship between prior attainment and the proportion of students attaining the AAB standard. The only students who have a realistic prospect of attaining the AAB standard are those who achieved an average GCSE score above 7.0 – equal to straight A grades at GCSE, and only those with an average GCSE score of 7.5 or higher have a better than 50:50 chance of meeting it.

Looking at those students with an average GCSE score below 6.0, we see that just 1% of students achieve the AAB standard.

Figure 2.0: Achievement of AAB in two of more facilitating subjects: 2013-14

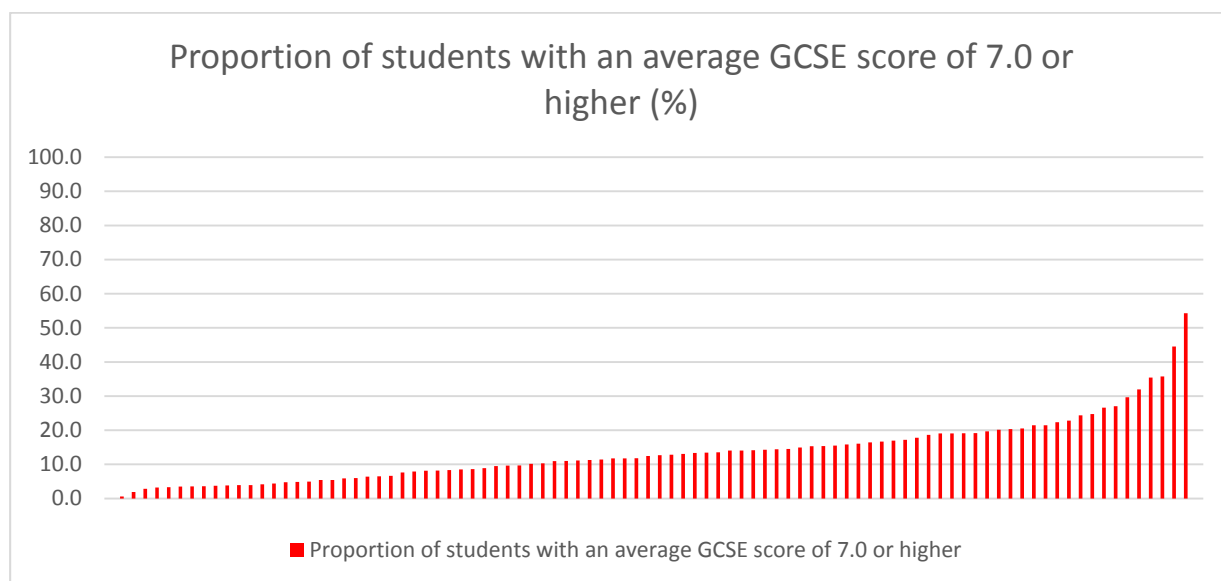
GCSE Band	Sat 2 or more A levels	Students attaining AAB in facilitating subjects	Students attaining AAB in facilitating subjects (%)
0.0-4.0	171	7	4.1
4.0-4.7	1558	20	1.3
4.7-5.2	4908	16	0.3
5.2-5.5	4887	27	0.6
5.5-5.8	6260	34	0.5
5.8-6.1	6531	72	1.1
6.1-6.4	6376	144	2.3
6.4-6.7	5677	345	6.1
6.7-7.0	4315	625	14.5
7.0-7.5	5433	1723	31.7
7.5-8.0	2572	1733	67.4
Total	48688	4746	9.7

None of this would matter if students with different levels of prior attainment were evenly distributed across the colleges: say if the 2,572 students in the top prior attainment band were spread out, 29 per college. But in reality some colleges have hundreds of these students others have none.

Figure 2.1 looks at the distribution of highly qualified students across the colleges in our analysis, examining the proportion of students in each sixth form college who have an average GCSE score of 7.0 or higher: those in the top two bands. There are a few colleges with significant numbers of these students (those towards the right hand side of the graph), but for the vast majority, less than 15% of the students have an average GCSE score above 7.0. Note also those colleges towards the far left

hand side of the graph. The bottom two colleges had just one student in the top two bands between them.

Figure 2.1: proportion of students with an average GCSE score of 7.0 or higher: sixth form colleges



Finally, there is something rather cruel about a system which disparages the achievement of some students simply on the basis of their choice of subjects. Should we not be celebrating the achievements of these students also? **Figure 2.2** shows the proportion of students in each band gaining AAB grades regardless of the subjects taken alongside the somewhat smaller proportion who achieved AAB including two facilitating subjects. It is the middle bands where the contrast is most pronounced... In the 5.8-6.1 band (students averaging around a B at GCSE, four times as many students secure the AAB without two facilitating subjects as achieve it with them.

Figure 2.2: Achievement of AAB in sixth form colleges: 2013-14

GCSE Band	Sat 2 or more A levels	Students attaining AAB in facilitating subjects (%)	Students attaining AAB in any subjects (%)
0.0-4.0	171	4.1	7.6
4.0-4.7	1558	1.3	2.1
4.7-5.2	4908	0.3	1.0
5.2-5.5	4887	0.6	1.6
5.5-5.8	6260	0.5	2.6
5.8-6.1	6531	1.1	4.3
6.1-6.4	6376	2.3	7.5
6.4-6.7	5677	6.1	14.5
6.7-7.0	4315	14.5	26.3
7.0-7.5	5433	31.7	46.2
7.5-8.0	2572	67.4	78.8
Total	48688	9.7	15.6

We have established that the only students with a significant chance of achieving the AAB measure are those with an average GCSE score of 7.0 or higher, that these students are unevenly distributed across the colleges and that that the vast majority of colleges have very few of these students. To have a measure in the accountability tables which looks at the proportion of students that achieve AAB in facilitating subjects is simply to have a measure that looks at the quality of a college's intake. It is, frankly, ridiculous.

There is no place in the accountability system for a measure by which some schools and colleges are guaranteed success, and others are guaranteed to fail.

MATHS AND ENGLISH GCSE

“Do not worry about your difficulties in Mathematics. I can assure you mine are still greater.”

Albert Einstein

The story of the 2014-15 inspection year is one of the inspection of programmes of study and the meeting of the Maths and English GCSE requirements. The emphasis on GCSE Maths and English has been almost absurd.

For some colleges the challenge in delivering GCSE re-sit courses will have shifted. While many colleges have always required that every student who lacks a pass grade in Maths and English continues with the subject throughout their studies, others have insisted only that they attempt it in the lower sixth year, others only that they attempt the subject again if they want to.

What is important here is to get an accurate sense of patterns in performance nationally. We do get some clues as to how well people do nationally from the QSR reports produced by the Data Service, but this provides the figures for all learning and skills providers (not simply SFCs), and makes no effort to adjust for the prior attainment of the students.

Our view remains that overall performance of Maths and English GCSE re-sit courses is actually rather good. Bear in mind that students that fail GCSE Maths have been studying it for a minimum of five hours per week, with those on the C/D borderline often given additional attention. A significant proportion of these students, particularly in the London and the South East will have been having receiving private tuition. The fact that sixth form colleges manage to get approaching 40% of these students who have previously failed to pass the qualification with a good grade is something of a triumph.

The 2013 Six Dimension project⁴ developed a model for establishing how good GCSE re-sit provision is. Crucially, an intervention was made that ensured that students were compared to others with similar starting points. For this analysis we did not take average GCSE as the starting point, but previous attainment in that subject. **Figure 3.1** illustrates why this is such an important factor to take into account.

What the data reveals, as one might expect, is that your chances of securing an A*-C grade in a re-sit GCSE are closely related to the grade that you got in the subject the first time around. Once we see what the patterns actually are, we can work towards producing a ‘fair’ analysis of provision.

The following analysis looks at the relationship between performance on GCSE re-sit courses in Maths and English and the previous grade achieved in that subject. Data is given for 2011-12 (the first year that the six dimensions project tackled performance in GCSE re-sit courses) and 2013-14, the current year of analysis.

Note that what we are looking at is the proportion of students that achieve A*-C grades of those that start courses. As such this is a tougher measure than the A*-C rate of completers which is more usually quoted, but an entirely valid one. Note also that this measure is now the one in use in the QSR reports (though, of course, no adjustment for prior attainment is made).

⁴ Six Dimensions of Performance: 2013 (available on the SFCA website)

Figure 3.1: Maths GCSE performance by prior attainment in Maths GCSE (2012 versus 2014)

	2011-12			2013-14		
GCSE grade	Starts	Achievers: A*-C grade	A*-C grade (%)	Starts	Achievers: A*-C grade	A*-C grade (%)
A	22	17	77.3	43	23	53.5
B	159	105	66.0	157	123	78.3
C	1068	645	60.4	1197	939	78.4
D	5330	2515	47.2	5331	1934	36.3
E	1560	330	21.2	1296	242	18.7
F	514	58	11.3	378	22	5.8
G	81	5	6.2	76	1	1.3
All given	8734	3675	42.0	8478	3284	38.7

Figure 3.1 gives us the picture for Maths GCSE. The first thing that is striking is that a good number of students on Maths GCSE re-sit courses have already secured Maths GCSE. The key row, however is that for students who have previously secured a D grade. The vast majority of students are in this band. We find that in 2011-12, 47% of students in this band went on to secure a pass grade. For those carrying an E grade, the figure is much lower: only 21% of students in this band secure an A*-C grade. In 2013-14, however, performance has fallen, and fallen by some distance. Part of the story here might be the requirement for all student to follow re-sit courses where appropriate, but note that the number of students starting re-sit courses in Mathematics has actually fallen. In both years of data, we see how unhelpful it is to have a measure of success that takes no account of the prior attainment of students.

The key figure in all this is the A*-C rate for students starting with a D grade. These are the students who have a realistic chance of passing the qualification, and these are the ones under programmes of study regulations who are required to be enrolled on the GCSE qualification in question. In GCSE Mathematics, 36.3% of those who started the subject subsequently secured a C grade or higher. We can also break down the data another way: looking at the A*-C rate for individual institutions. The top performing college has an A*-C rate for D grade students of over 90%. A significant number are under 25%.

Figure 3.2: Institution level A*-C rates for students carrying a D grade at GCSE Mathematics

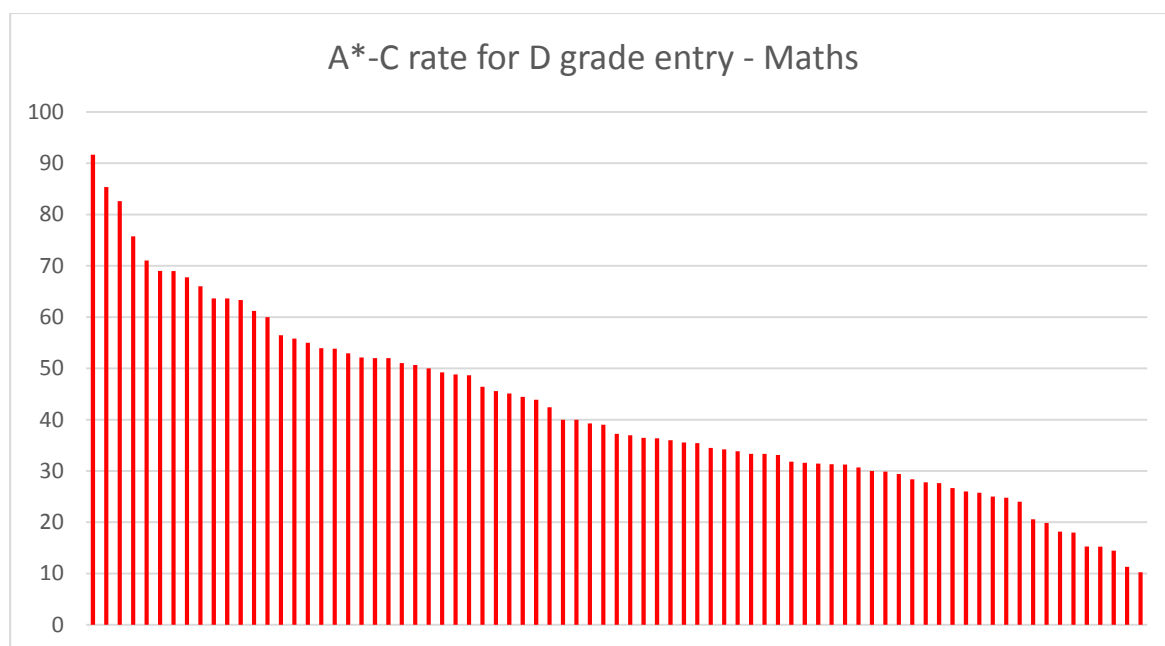


Figure 3.2 show us how much performance varies across institutions. Each bar represents an individual college. The colleges with the higher A*-C rate (of starters) are towards the left. The top performer has a 92% A*-C rate with students who had previously secured a D grade. Eleven colleges have a rate below 25% for these students.

It strikes me here that there are two clear conclusions. Firstly, Ofsted needs to stop beating up colleges where significant numbers of students are doing a difficult thing well. The key reason that the national rate is what it is, is that passing something you have already failed (possibly on several occasions) is challenging. If a college is doing better than is typical it should be commended, even if 'only' 60% of GCSE re-sit students are being successful. Secondly, we do need to concede that Ofsted do have a bit of a point. There are some colleges where the performance of those re-sitting GCSE Maths and English is simply not good enough, and given the significance of passing these qualifications for the students concerned Ofsted are right to mention it. But there needs to be a sense of proportion also. If a college has a thousand students, and 100 re-sit Maths GCSE. If the GCSE Mathematics success rate is 10% below the national rate, then that represents a negative outcome for just 1% of the college population: there are better reasons for a requires improvement judgement.

There is, one supposes, also the question as to why there is such variation. Partly, GCSE re-sit courses represent a game that some colleges are better at playing than others. The strategies that colleges use around November re-sit entry, and front-loading teaching for the first two months of the year are cases in point. There is also a matter of priority, and one thing that the flavour of recent inspections has highlighted is that colleges need to have GCSE re-sit courses as a priority. One question worth asking at any college is how re-sit courses are staffed. Are they the first thing that are staffed or the last? Are they best teachers deployed on these courses, or do the best teachers get the pleasures of Further Mathematics and A level English Literature? Getting the right staff is key. We perhaps also need a bit of deeper thinking about ways of delivering these courses, about liaison with feeder schools right at the start of the academic year, about different ways of balancing contact time and class sizes and about additional one-to-one support.

Of course the real challenge for re-sit provision will be 2016-17. Students who have followed 'old' GCSE Maths and English specifications will only have the November re-sit. Any student not successful at this point will have to attempt the new 'harder' GCSEs, presumably in half the time that the comparator group will have to prepare for it.

We find similar patterns when we repeat the analysis for English GCSE.

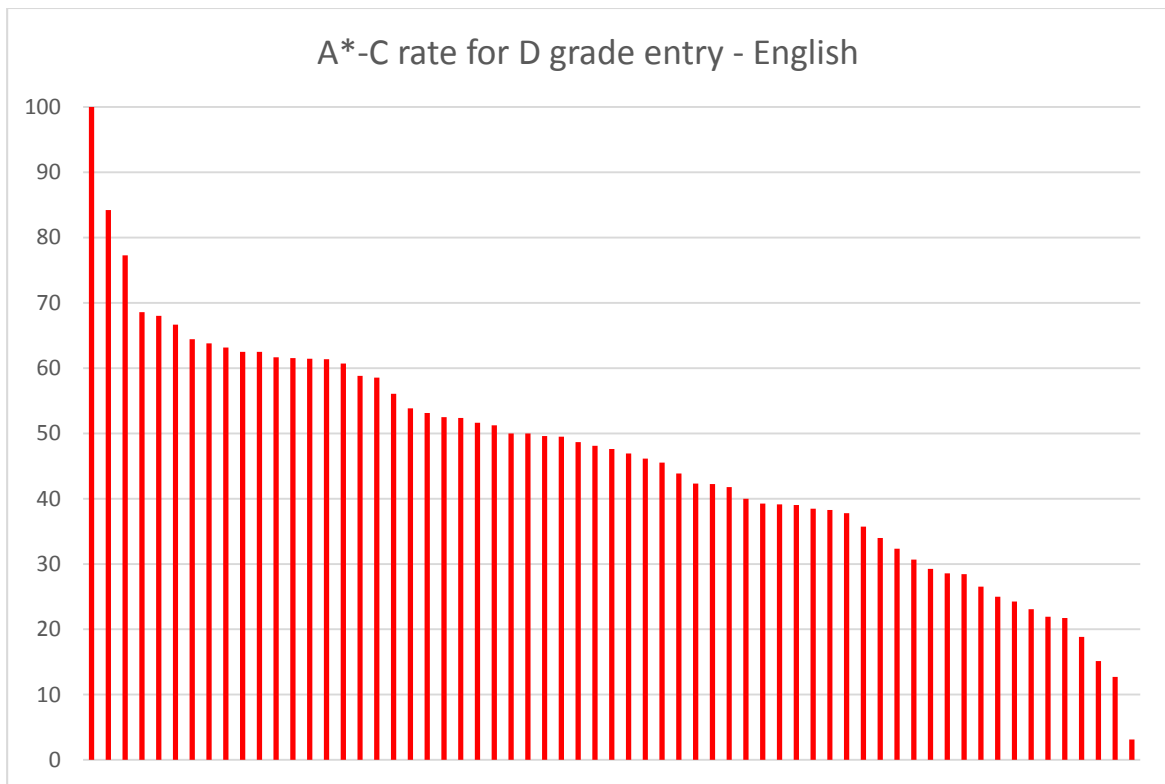
Figure 3.3: English GCSE performance by prior attainment in English GCSE 2012 versus 2014

GCSE grade	Starts	Achievers: A*-C grade	A*-C grade (%)		Starts	Achievers: A*-C grade	A*-C grade (%)
A	33	26	78.8		47	23	48.9
B	139	100	71.9		115	92	80.0
C	716	447	62.4		786	620	78.9
D	4654	1652	35.5		6390	2337	36.6
E	999	210	21.0		836	179	21.4
F	214	37	17.3		112	10	8.9
G	42	4	9.5		27	6	22.2
All given	6797	2476	36.4		8313	3267	39.3

The majority of English GCSE re-sit students are those who have previously secured a D grade. In 2011-12, just 35% of these students successfully gained an A*-C grade. In 2013-14, the number of students re-sitting this qualification significantly increased, but the proportion of students converting a D grade into a C grade remains static, at around 36%.

Figure 3.4 examines the proportion of students carrying a D grade from school who subsequently secure a C grade or higher in each of the institutions in our analysis. The top institution has a 100% C grade pass rate with these students. The bottom ten institutions have an A*-C rate below 25%.

Figure 3.4: Institution level A*-C rates for students carrying a D grade at GCSE Mathematics



Our two conclusions from the analysis of Mathematics GCSE re-sits hold for GCSE re-sits in English. Ofsted are being more than a little unreasonable overall, but performance in some individual colleges is well below what happens nationally. It would be difficult to construct an argument as to why any institution should be excused a GCSE re-sit A*-C rate of below 25% with D grade re-sitters.

PERFORMANCE IN SIXTH FORM COLLEGES OVER TIME

“We’re all doomed.” (Private Frazer, Dad’s Army)

Now that the six dimensions project is entering its sixth year, it is possible to offer some comment on how performance has changed over time.

One thing that the project brought into sharp focus was success rates, and how success rates vary with prior attainment. It is that which we turn to first. In the days before Maths and English GCSE started to dominate the conversation, Ofsted seemed particularly worried about AS level success rates. A number of colleges received inadequate judgements on the basis of this: either through comment on the success rates themselves, or by suggesting that too many students had two AS level years, reflecting inadequate pre-course guidance and initial assessment.

Figure 4.1: AS level success rates: 2010-11 and 2013-14 compared

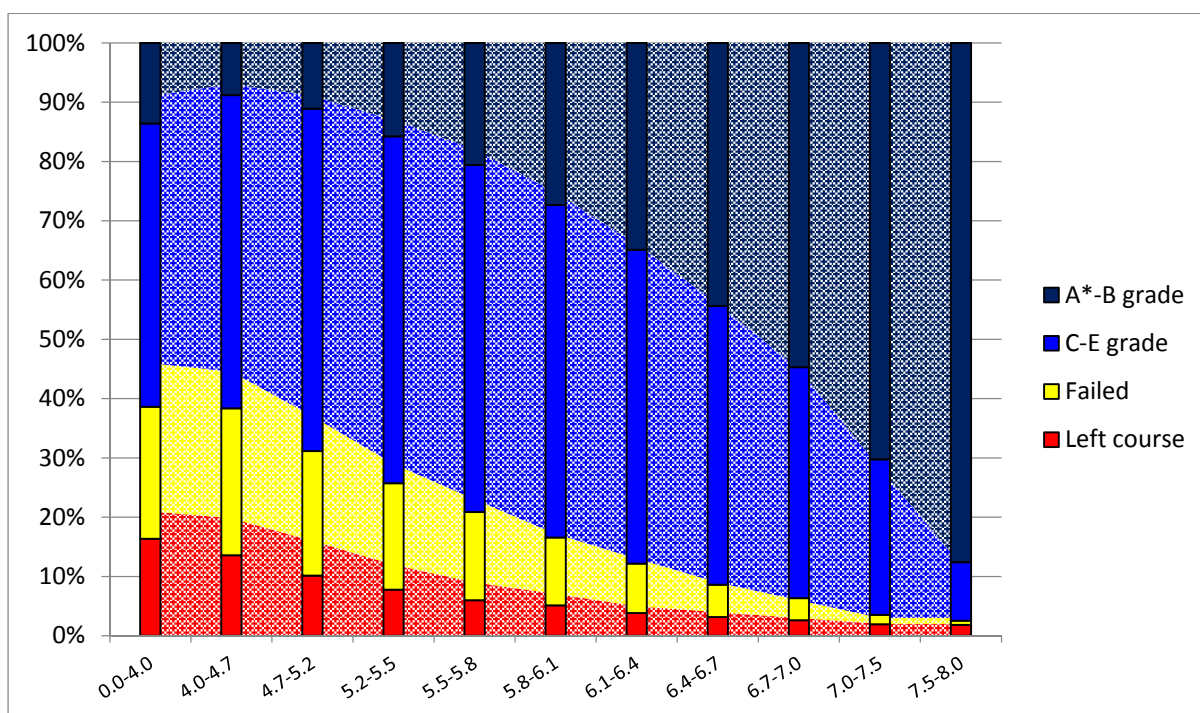


Figure 4.1 compares performance in 2010-11 (the first year the project developed the full six dimensions and the four outcome graphs) with that in 2013-14. The shaded background area represents AS level performance in 2010-11. The outcomes for 2013-14 are overlaid on this graph, in the form of the darker, narrow bars. Towards the top end of the prior attainment spectrum, performance in 2013-14 is pretty much exactly in line with that from 2010-11. Towards the lower end of the prior attainment spectrum is a different matter entirely. Success rates (which are, essentially, the two blue elements of the bar combined) have improved significantly in the bottom five prior attainment bands (5.8 and below). This improvement has largely been driven by improvements in retention.

The introduction and use of comparable outcomes methodology by the awarding bodies has ensured that the overall national pass rate and grade profiles are static at both GCSE and AS/A level. For the pass rate in SFCs to have improved significantly, it would have had to be at the expense of students elsewhere in the post-16 environment. It should be no surprise then that we have not seen a significant change in the pass rate. The one aspect of performance not touched by comparable outcomes methodology is retention – you can improve that as much as you like without having to improve at the expense of someone else.

In an era of a crushing reduction in the unit of resource, sixth form colleges have seen significantly improved success rates for those students with average GCSE scores below 5.8. One further analysis we should complete is to look at whether the profile of students starting AS level courses has changed in recent years.

Figure 4.2: enrolments on AS level courses 2010-11 and 2013-14

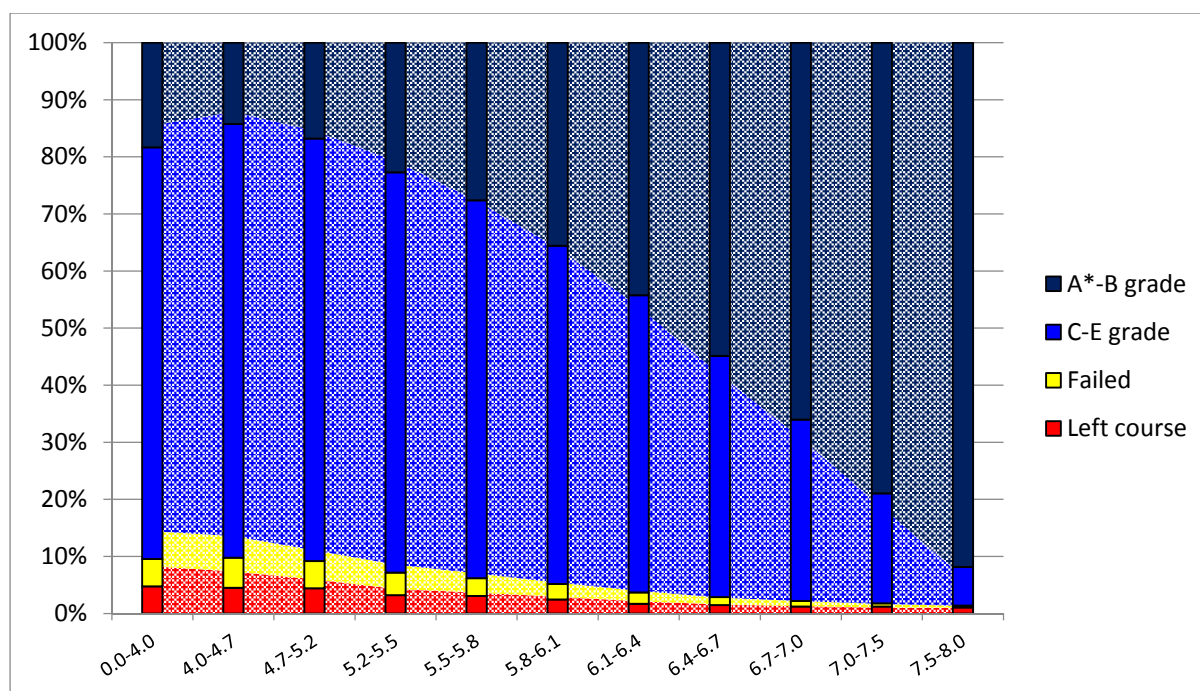
Band	2010-11		2013-14	
	Starts	%	Starts	%
0.0-4.0	2355	0.8	1737	0.7
4.0-4.7	15831	5.6	13164	5.0
4.7-5.2	37262	13.2	33123	12.7
5.2-5.5	31818	11.3	29698	11.4
5.5-5.8	36745	13.0	34469	13.2
5.8-6.1	35484	12.6	34306	13.2
6.1-6.4	33471	11.9	31144	11.9
6.4-6.7	28605	10.2	26380	10.1
6.7-7.0	21915	7.8	20162	7.7
7.0-7.5	26552	9.4	24624	9.4
7.5-8.0	11541	4.1	11896	4.6
	281579		260703	

The number of AS enrolments in sixth form colleges has dropped by 7.4% since 2010-11. There are (at least) three forces at work here: the increasing use of BTEC qualifications for whole and mixed programmes, the changing funding formula creating downward pressure on programme size, and the reduction in enrolments in general studies.

With the surge in BTEC provision, one might have expected to see a significant reduction in the proportion of students in the bottom bands. Actually, the proportion is pretty static. In 2010-11, 44% of starts were in the bottom five bands. In 2013-14, 43% of enrolments were in the same five bands.

Not only have we seen significant improvements in success rates in the bottom five prior attainment bands, but this represents significant improvement for approaching 50% of the sixth form college cohort.

Figure 4.3: A2 level success rates: 2010-11 and 2013-14 compared



Again, we see significant improvement in the bottom five bands, with the success rate (the two blue elements of the graph combined) hitting 90% across the ability range.

The one thing we can't get from this analysis is a sense of how sixth form colleges have been performing in comparison to other providers. The one measure we can use here is L3VA scores. These of course tell us only a fraction of what we need to know, but they do tell us about an important fraction – how they grades our students get at the end of A level programmes compare to similarly qualified students nationally at the same point.

Figure 4.5: L3VA scores: 2023-14 exam series

	A level entries	L3VA score
Sixth Form Colleges	144,557	0.0
Schools	439,439	0.1
GFE / Tertiary Colleges	54,108	-0.1

The current L3VA model reports in terms of fractions of a grade. The L3VA score for 2013-14 for sixth form colleges is 0.0, suggesting that students get exactly the A level grades that would be expected, given the prior attainment profile of the students and the subjects being studied. Schools perform fractionally better, and GFE and tertiary colleges fractionally worse. In previous years, sixth form colleges have been ahead of other providers. The advantage that we did enjoy over other providers has been eroded, and in fact eradicated. Note that the 2014 exam series was the first where students and colleges have not had the benefit of January modules, which may have had the effect of drawing exam grades back towards the middle.

Great Expectations

It strikes me that there could be few lines that more fully sum up what value added is about than this line from Robert Browning.

“A man’s reach should exceed his grasp.”⁵

It is a line that works equally well when talking about individual students, when talking about subject teams, or when talking about whole colleges. Let us pause a moment to consider it. The notion of reach is about stretching beyond what is secure. It is of course exactly what the most effective students do – they push themselves beyond what is normal, beyond what they are comfortable with. They do not rest on what they have currently mastered. With each piece of work they seek to improve further. It is a comment about ambition, about taking risks, about resilience and about not being put off by the possibility of failure. This is also exactly what highly effective colleagues, highly effective departments and highly effective colleges do. They have a clear sense of where normal performance and current performance lies and an ambition to go beyond this – a sense of not being satisfied with being in line with national averages, and a yearning to go beyond.

The analysis presented here emerges from some research conducted at Peter Symonds College looking at the habits of highly effective students. In our explorations, one group we examined was those that secured places at Russell Group universities. We identified important differences between Russell Group students and the rest of the A level cohort. The sixth form colleges’ data-set allows us to explore these features with a much bigger group of students. We can isolate particular groups of students and examine different aspects of their performance to see whether they differ from other students.

Our analysis looks at the 8,972 students who secured places at Russell Group universities in the 2014 application cycle. This includes students who have secured a deferred entry place, but excludes any that may be taking a gap year and pursuing post-qualification applications. This group represents 23.0% of the 38,985 students completing A levels in 2013-14.

Our first analysis goes back to the 2012-13 year, and looks at how these students performed at AS level.

Figure 5.1: AS level performance 2012-13: students subsequently securing Russell group places.

	Attendance	Retention	Achievement	Success	High Grades	Points per starter	Points per completer	Points per achiever
Expected	93.2	96.7	95.6	92.6	59.5	52.7	54.3	56.2
Actual	94.2	99.2	98.7	97.9	76.3	61.2	61.6	62.5
+/-	0.9	2.5	3.0	5.3	16.9	8.5	7.3	6.3

⁵ “Andrea del Sarto”, by Robert Browning

Figure 5.1 show us the six dimensions outcomes for the Russell Group students in 201-23. The **Expected** line gives us the level of performance for each measure which would be expected for similarly qualified students pursuing the particular spread of subjects started by the Russell Group students. The model expects (for example) 93.2% attendance. The **Actual** row shows us the level of performance achieved by these students (94.2%), and the +/- figure shows us the difference (+0.9). We see that the Russell group students complete more course than would be expected and pass more of the qualifications they complete than would be expected, but is the high grades measure and points measures that are most impressive. The students are getting touching 17% more high grades than would be expected, and remember this has been adjusted for prior attainment, so it is not simply a matter of these students being super-bright. The points per completer measure is the most useful here. It tells us, as fifteen points is equal to an AS level grade, that the students got a grade higher than would be expected in half of the AS levels they sat.

Figure 5.2: A level performance 2013-14: students subsequently securing Russell group places.

	Attendance	Retention	Achievement	Success	High Grades	Points per starter	Points per completer	Points per achiever
Expected	92.9	98.5	98.7	97.2	66.4	117.7	119.4	120.6
Actual	94.2	99.6	99.6	99.2	87.0	136.3	136.8	137.4
+/-	1.3	1.1	0.9	2.0	20.6	18.5	17.4	16.7

Figure 5.2 looks at the A level performance of the same group of students. Performance is above expectation in every category. But what is particularly interesting is how this performance compares to performance at AS level. These students have not only consolidated the advantage the secured in the AS units of the course, but have extended it.

Regardless of prior attainment, these students have outperformed their peers by some distance. They have not simply met the expectations (and the target grades), they have exceeded them by some distance. The reach of these students goes well beyond their grasp. Each time they grasp something, they reach again.

Figure 5.3: A level performance 2013-14: students subsequently securing Russell group places, by prior attainment

PPC	7.5-8.0	7.0-7.5	6.7-7.0	6.4-6.7	6.1-6.4	5.8-6.1	5.5-5.8	5.2-5.5	4.7-5.2	4.0-4.7	0.0-4.0
Count of subjects completed											
All	9060	17933	13944	17971	19683	19591	18459	14165	14217	4697	524
Russell Group	6101	8542	4561	3963	2814	1725	1003	497	314	101	16
Points Per Completed A level subject											
All	149.2	129.6	116.3	106.8	97.9	91.2	85.3	80.7	75.6	73.3	76.2
Russell Group	153.7	140.1	133.3	129.0	124.8	124.4	121.7	123.1	117.3	125.0	125.6
+/-	4.4	10.5	17.0	22.3	26.9	33.2	36.3	42.4	41.8	51.8	49.4
Gap – grades per entry											
	0.1	0.3	0.6	0.7	0.9	1.1	1.2	1.4	1.4	1.7	1.6

Figure 5.3 explores how the performance of the Russell group students compares with the performance for ‘all’ students in each of the prior attainment bands. As one would expect, the students securing Russell Group places are centred towards the top end of the prior attainment profile. However, there are students gaining access to Russell Group universities in each of the bands. In fact, there are good numbers of students in each of the bands from 5.2 upwards (2 grade ‘B’s and 8 grade ‘C’s at GCSE).

The points scale uses a measure where 30 points is equal to a grade. In the very top band, the difference is slight. In this band students tend to get straight ‘A’ grades anyway. In the second band down, things start to get very interesting indeed. A score of 10.5 suggests that in a three A level programme, the Russell group students score on average one grade higher than their equally qualified peers who do not secure places: on average, a profile of AAB rather than ABB. By the point we reach an average GCSE score below 6.4, the students are scoring a grade higher than would be expected on the basis of prior attainment and subject choice alone in each and every one of their A level subjects.

We can explore this another way, looking at the typical grade outcomes of all students and the typical grade outcomes of Russell group students.

Figure 5.4: A level performance 2013-14: students subsequently securing Russell group places, by prior attainment

Band	All students	Russell Group students
7.5-8.0	AAA	AAA
7.0-7.5	ABB	AAB
6.7-7.0	BBB	AAB/ABB
6.4-6.7	BBC/BCC	ABB
6.1-6.4	BCC	BBB
5.8-6.1	CCC	BBB
5.5-5.8	CCC	BBB
5.2-5.5	CCD	BBB
4.7-5.2	CCD/CDD	BBB
4.0-4.7	CCD/CDD	BBB
0.0-4.0	CCD/CDD	BBB

It strikes me that this data provides an excellent basis for a discussion with students at the start of their A level studies. A discussion about the importance of ambition. A discussion about how a target grade (and the column for ‘All students’ above can be read as a target grade) is a starting point for discussion and not a limiting of ambition. It is not just what students have achieved at 16 that shapes their future, it is how they approach A level study, and how they work over the two years.

These students hit the ground running and they don’t stop. They accelerate through the first year, and then consolidate that advantage in the second. This is not simply a story about well qualified students. It is a story about the impact of ambition, of hard work, and about seeking to improve. And it is not just a story about the Russell Group – this group is simply a proxy for highly ambitious, motivated resilient students, wherever their ambitions may lie.

Every college can model what behaviours these students have, especially those from the middle bands. Perhaps in talking to new students about how to approach their time at college we should focus a little less on the destination that students get to, and more on the journey that they make. Every college will have examples of middle prior attainment band students that significantly overachieved. Perhaps we should get them to tell the new intake how they achieved it.

We should use this information in conversations with individual students about their target grades. Overall the message is simple: “Want to get to the Russell Group or some other challenging destination? Add half a grade to you target grade and seek to exceed it. Target grade of a B? Aim for AABB in your AS levels. TMG of C? Aim for BBCC.” A man’s reach should indeed exceed his grasp.

While we are looking at the importance of ambition and expectations it is perhaps worth returning to one of the first analysis conducted by the six dimensions project: the analysis of the relationship between attendance and outcomes.

While no-one would suggest that there is a simple causal relationship here and that all failure could be eliminated if students would just attend all the time, there is a value in sharing with students the impact of poor attendance in terms of typical outcomes.

At one level examining attendance is an exercise in the blindingly obvious – those students that attend more get better outcomes. It would also be quite reasonable to suggest that good attendance is the consequence of educational success rather than the cause of it. However, there is a real benefit to having some sense of the actual data around the impact of attendance: a sense which gives us an additional lever in conversations with students and parents, and in the context of this discussion, a way of framing thinking and expectations around attendance.

Figure 5.5: Attendance – AS level (2013-14 data)

Points per entry	7.5-8.0	7.0-7.5	6.7-7.0	6.4-6.7	6.1-6.4	5.8-6.1	5.5-5.8	5.2-5.5	4.7-5.2	4.0-4.7	0.0-4.0
Entries											
All	10579	21529	17302	22371	26388	28628	29058	24134	26221	10144	1339
% above 95%	72.1	66.3	61.1	57.8	52.6	48.7	44.2	40.7	35.4	29.8	27.0
% 85-95%	22.8	28.1	30.9	32.8	36.3	37.8	38.9	40.7	41.6	40.8	38.7
% below 85%	5.1	5.6	8.0	9.5	11.1	13.5	17.0	18.6	23.0	29.4	34.4
Average Attendance	95.6	95.1	94.3	93.8	93.2	92.4	91.6	91.0	89.9	88.1	86.6

Overall, attendance in the sector in AS level provision is 92.4%, but this average (as with many averages) disguises significant variation. There are two features of the graph which are immediately interesting. Firstly, there is a relationship between attendance and prior attainment. The better a student performed in school, the better they are likely to attend in college. Students with an average GCSE score of 7.0 attend 95% of the time, and those with an average GCSE score of 5.2 attend around 90% of the time. These are not trivial differences. Each band is also divided into three groups: those that attend over 95% of the time, those that attend above 85% but below 95%, and those that attend below 85%. Note how the proportion of students that attend below 85% increases steadily as prior attainment decreases. Only 5% of students with ‘A’ grades at GCSE attend less than

95% of the time, whereas almost a quarter of students with 'C' grades at GCSE attend below this threshold.

If we look at the proportion of enrolments where attendance is below 85%, we find that for all students, the figure is 18%. The school league tables include a figure for 'persistent absence', which is defined as absence above 15%, dovetailing neatly with our threshold of 85%. The figure for secondary schools in England for 2013-14 is schools is 5.3%. In sixth form colleges the figure is 18%. The emergence of persistent absence coincides with the post-16 phase of education. We would be foolish to pretend that there were not some serious questions we should be asking of ourselves.

Figure 5.6 takes this analysis further and looks at the relationship between levels of attendance and performance at AS level in points per entry terms. A grade is equal to 15 points on the scale used.

Figure 5.6: Attendance, prior attainment and Points per subject – AS level (2013-14 data)

Points per entry	7.5-8.0	7.0-7.5	6.7-7.0	6.4-6.7	6.1-6.4	5.8-6.1	5.5-5.8	5.2-5.5	4.7-5.2	4.0-4.7	0.0-4.0
Points per entry											
95% or higher attendance	70.1	62.3	55.4	50.8	46.1	42.1	38.2	35.5	32.8	31.3	36.6
85 – 95% attendance	68.1	58.2	51.1	46.8	42.0	38.0	34.2	31.2	28.2	27.0	31.0
Below 85% attendance	64.5	51.6	44.0	39.6	35.5	31.7	28.3	24.9	22.5	20.6	21.2
Gap: above 95% versus below 85%	5.6	10.7	11.4	11.2	10.6	10.4	9.9	10.6	10.3	10.7	15.4

For each of our three attendance bands, the points per entry is given. Look at the band for students with an average GCSE score of 5.8 to 6.1. Those students who attend above 95% achieve 42 points per entry – just short of a C grade, on average. For those attending below 85%, the points average is 31.7 – just above a D grade.

The final row of our table looks at the gap between those attending above 95% and those attending below 85%. In all but the very top band, the gap is around 10 points per entry. In a three AS level programme this equates to two whole grades per student – an outcome of BCC rather than BBB, for example. In a four A level programme the impact is between two and three grade per student.

These differences represent a material difference in life chances, particularly in terms of university applications.

In this analysis we have sought to develop insights that can be shared with students to help to try to foster aspiration, ambition, and hard work. There is one rather neat way of drawing together the main themes of our discussion, and that is to look at the attendance of those students who end up at the Russell Group. Remember that for all students the proportion of enrolments where attendance is below 85%, the figure is 18%. For students that end up at the Russell Group it is just 4.4%. Again we find an important association between attendance and success.

Appendix One: Understanding and interpreting individual college reports

Six dimensions reports provide an extended value added analysis of performance in an individual school or college. Whereas traditional value added models restrict themselves to examining points gained per exam completed, six dimensions reports consider a much wider basket of measures of performance, and the analysis encompasses all students who started courses, not just those that reached the end.

Core reports for college and subject performance all follow the same basic structure:

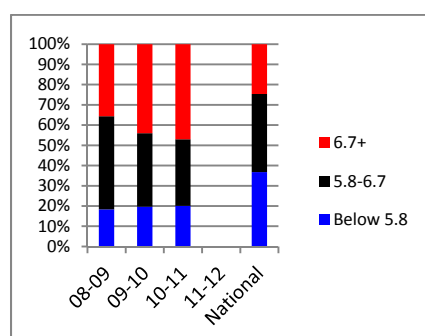
1. **Student profile**
2. **Value added analysis**
3. **Performance by prior attainment band**
4. **Four year trend analysis**

The idea here is to give management and subject teams the opportunity to examine the context in terms of the characteristics of the students a department or college is dealing with, explore multiple dimensions of performance, explore performance across the prior attainment spectrum and examine performance over time.

Student profile

	All	Gender		Ethnicity			Prior attainment			Ave GCSE
		Male	Female	White	Non-white	Below 5.8	5.8-6.7	6.7+		
		%	%	%	%	%	%	%		
2008-09	191	58	42	93	7	18	46	36	6.4	
2009-10	193	53	47	98	2	20	36	44	6.5	
2010-11	234	44	56	96	4	20	33	47	6.5	
2011-12										

The student profile data is provided to give a sense of what the profile is in a particular institution, how this is changing, and how it relates to national patterns. In our example here we see an interesting switch in the gender profile, and a steady increase in the proportion of very well qualified students taking the subject.

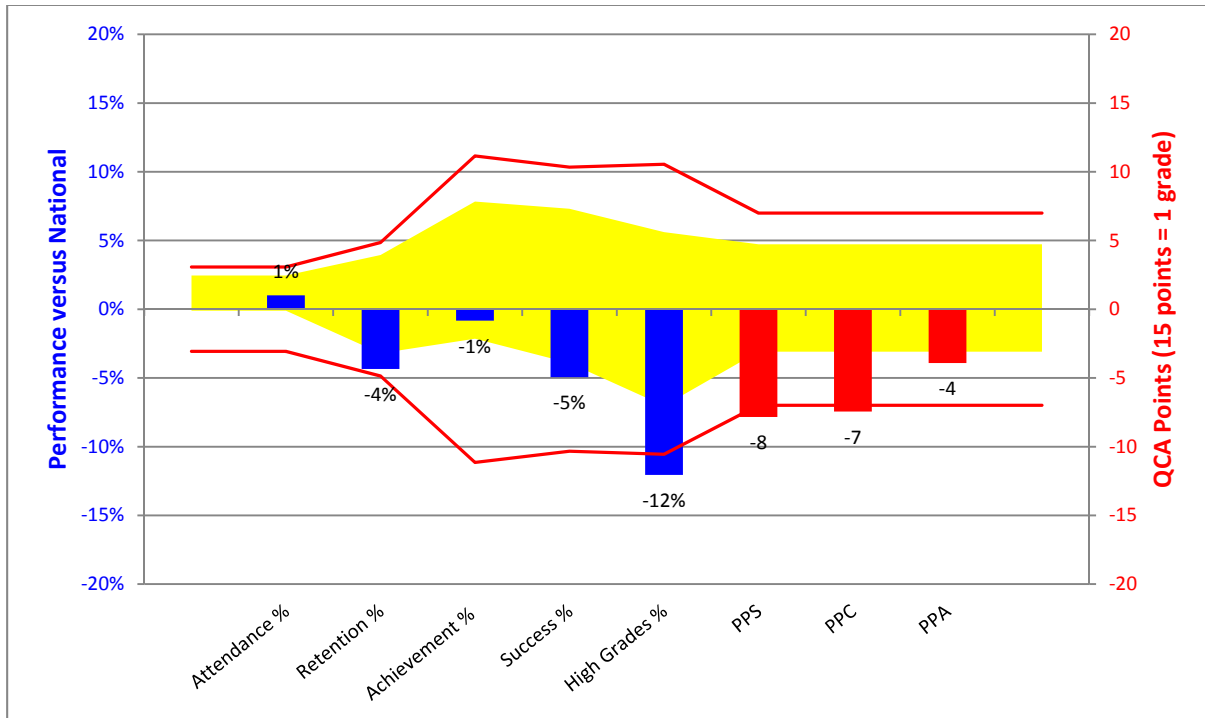


The prior attainment profile is summarised in the graph above. The right hand bar is the national profile of all students taking the qualification concerned. The blue section represents those with an average GCSE score below 5.8; the red section represents those students with an average GCSE score of 6.7 or above. In our example, we can immediately see whether the profile is in line with

what is typical nationally. We also see the increase in the proportion of well qualified students taking the subject. Department heads often comment on how their students relate to those found in the subject nationally – this analysis will allow such discussions to be based on actual evidence.

Value Added Analysis

The value added analysis section is where we present the outcomes for the current year in terms of the eight dimensions of performance.



In the data presentation, national performance is represented by the zero line. When a blue or red bar extends above or below the zero line, it indicates that performance is different to the national average.

The yellow shaded area represents the middle 50% of sixth form colleges. The upper limit of this yellow zone is the 75th percentile, the lower limit of the yellow zone is the 25th percentile. If a bar extends beyond this shaded area, it indicates that performance is in the top or bottom quarter nationally.

Position	Interpretation
Above 75 th percentile	Scores above the 75 th percentile are in the top quarter nationally
Between 25 th and 75 th percentile	This is, broadly speaking, 'normal' performance. Scores in this range are in the middle 50% of colleges
Below 25 th percentile	Scores below the 25 th percentile are in the bottom quarter nationally

The red lines indicate the limits of one standard deviation around the national line. 68% of scores will fall within this zone. A bar extending above this would be in the top 16% nationally.

In our example here, the department is not performing particularly well. We see that attendance is 1% above what would be expected in this particular subject for the profile of students the department is serving. Retention is some way below expectation, though achievement is close to the national line (again, a standard based on national patterns of prior attainment, retention and achievement). The success rate is some 5% below what would be expected. We see the bar for success extends below the yellow zone, indicating that this performance is in the bottom 25% nationally. The high grades of starters figure is particularly worrying. Imagine a class of 25 students starting a course in September. In this department three fewer would achieve a high grade than would be typical nationally. Remember that this is high grades of starters: covering all the students on the course, rather than just those that completed the course. Getting a high grade is a powerful thing in terms of life chances for students. If in every class, three fewer students are getting a high grade than would be expected, that is real cause for concern.

The subject level reports use three different points measures to explore performance:

- a. **Points per starter (PPS)** – of those that start the course, is the number of QCA points gained per student typical for the subject in question and the prior attainment profile of the students.
- b. **Points per completer (PPC)** – of those that finish the course is the number of QCA points gained per student typical for the subject in question and the prior attainment profile of the students.
- c. **Points per achiever (PPA)** – of those that pass the qualification, is the number of QCA points gained per student typical for the subject in question and the prior attainment profile of the students.

The points measures use QCA points, which means that the scale used for AS level is different to that used for A level. In the AS analysis 15 points is equal to a grade, in the A level analysis 30 points is equal to a grade.

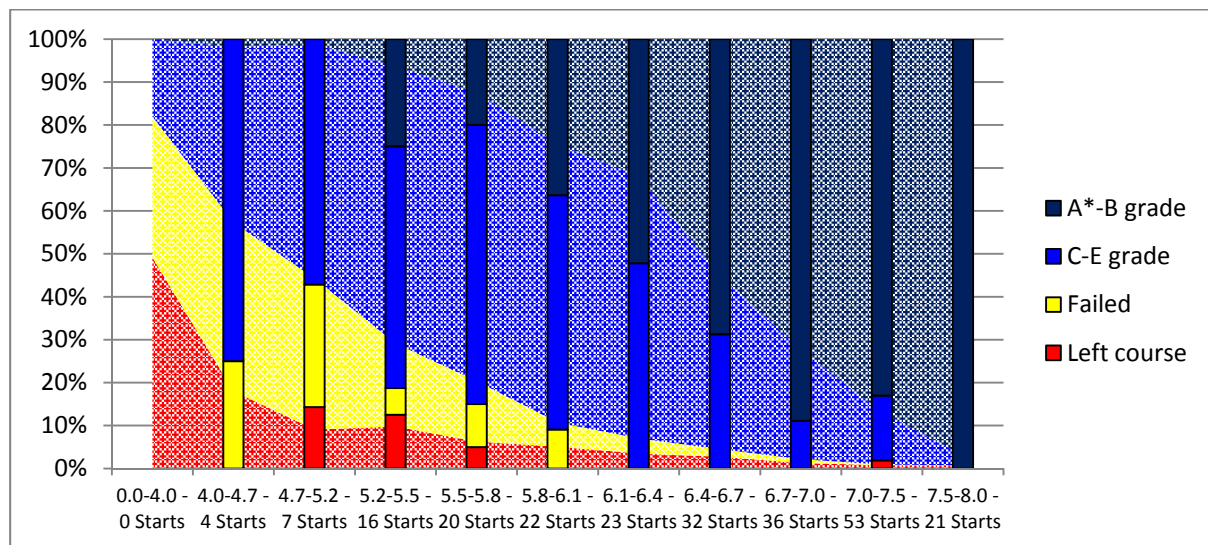
AS level points (15 points = one grade)	A level points (30 points = one grade)	% of a grade per student	Fraction of a grade per student
0	0	0	
1	2	7%	1/15
2	4	13%	2/15
3	6	20%	1/5
4	8	27%	4/15
5	10	33%	1/3
6	12	40%	2/5
7	14	47%	7/15
8	16	53%	8/15
9	18	60%	3/5
10	20	67%	2/3
11	22	73%	11/15
12	24	80%	4/5
13	26	87%	13/15
14	28	93%	14/15
15	30	100%	1/1

It is also vitally important to (literally) get a sense of proportion when interpreting scores. If there were only twenty students on a course, then each student represents 5% of the total. On such a course, a cohort could be 4% below the national rate, but would have been above the national rate if one more student has achieved the qualification. Even with much larger cohorts it is important to get a sense of how many additional 'passes' would have been required to achieve the national average, 75th percentile and so forth.

For example, a sociology cohort of 250 students at a large sixth form college achieves a success rate of 85.2%, but the value added success rates model expects it to achieve 88.3%: it is 3.1% below the national average. As there are 250 students, each percentage point represents 2.5 students. 3.1% equates to eight students. If eight more students had passed the qualification, the college would have scored a positive figure and been above the national average. Of course, in this instance there are 37 students who were not successful. The department needs to explore their case histories for clues as to how the department might have responded better to the needs of the students concerned. The discussion the department then needs to have is about the 37 students who were not successful and what could be done to drive-up success rates in the future.

Performance by Prior attainment band

In the performance by prior attainment band section we return to the graphical presentation we used when exploring the relationship between prior attainment, subject and student outcomes. The shaded background represents national performance in a subject; the narrow bars represent performance in an individual subject.



Note that the display includes the number of students that started the course in each band. We should be very cautious about over-interpretation if the sample size in a particular band is small. For example, in the 4.0-4.7 band in the above, there are only four students, so each will represent 25% of the total. It is performance in the bands where the majority of students lie that will prove most useful.

It does, however, give us a really clear idea of what happens nationally, and if performance (for good or bad) is significantly different to what happens nationally in a number of bands, then we need to know why.

Four year trend analysis

(4) Four Year Trend Analysis															
		Raw Performance							Value Added Performance						
	Starts	Att	Ret	Ach	Succ	High	PPS	Att	Ret	Ach	Succ	High	PPS		
2008-09	191		100.0	97.4	97.4				3.7	4.0	7.1				
2009-10	193		98.4	98.9	97.4				2.1	5.6	7.1				
2010-11	234	95.4	97.9	96.5	94.4	62.8	54.1	2.0	1.5	3.0	3.9	7.9	4.0		
2011-12															

The final presentation of data contrasts raw and value added performance. The value added scores are colour coded. Performance in the bottom quarter uses a blue font, performance in the middle half uses a black font, and performance in the top quarter is represented by a red font.

Destinations reports

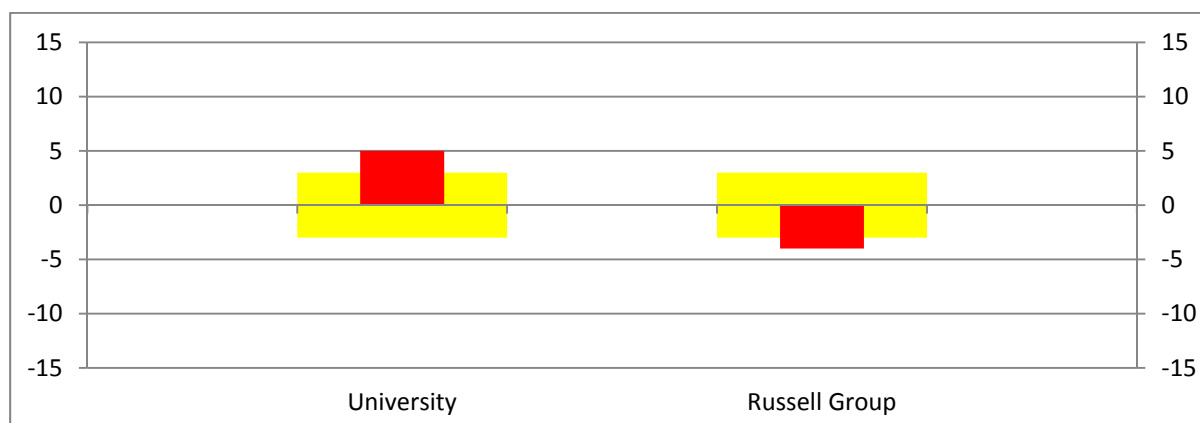
The destinations report is designed to compare performance in an individual college with national patterns of destination.

The report centres on those students starting at least two A2 level qualifications in 2012-13. The only destinations that are reported on are 'secured destinations' – when a student has a confirmed university place (for direct entry or deferred entry) by the close of clearing. Students applying to university in the year following A level results do not count as a 'positive' destination by this methodology.

There are two key measures in this report:

1. The proportion of students that secure a university place, compared to a benchmark which is adjusted according to prior attainment profile of students
2. The proportion of students that secure places at Russell Group universities, compared to a benchmark which is adjusted according to prior attainment profile of students

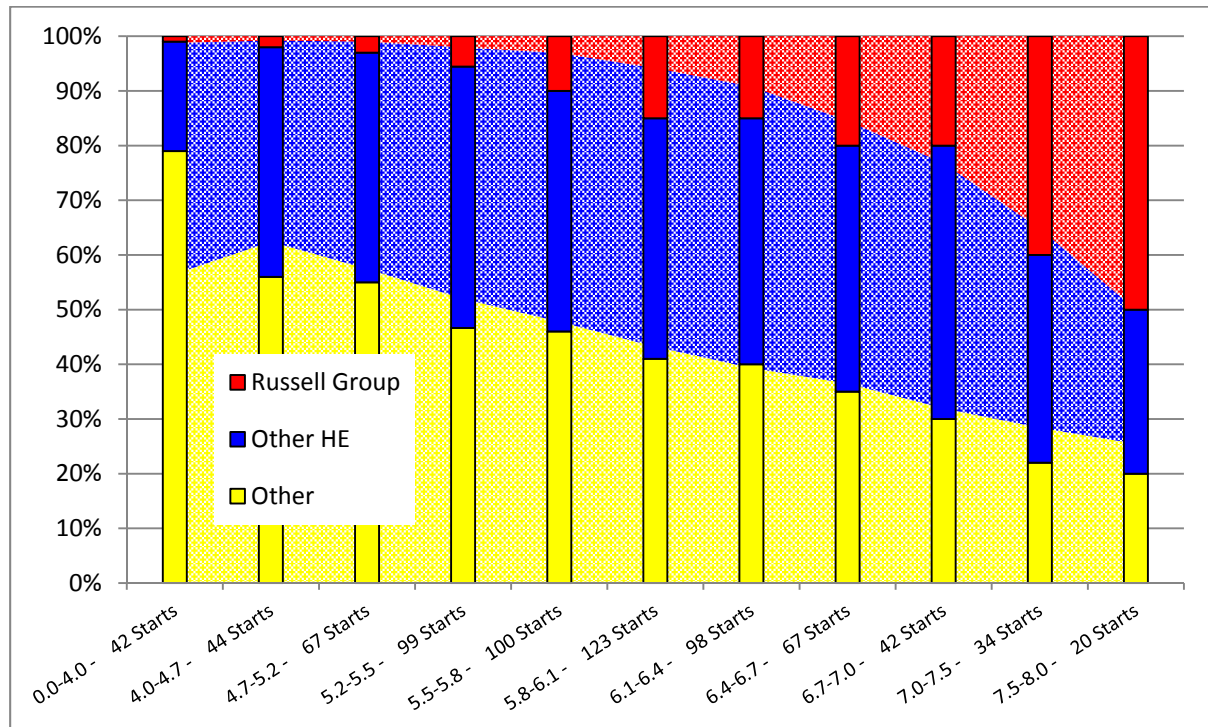
Secured University Destinations Analysis



This graph summarises the overall performance of an institution, which is represented by a red bar. If the bar extends above the zero line, it indicates that more students progress than would be

expected. If a bar extended below the line, it suggests that fewer students than would have been expected secured progression at the end of their A level course. If the red bar is close to or at zero, it suggests that students secure progression to university in the proportion that would be expected. The yellow background represents performance in the middle half of colleges. If a bar extends above this yellow zone, it indicates that a cohort is in the top quarter nationally. If a bar extends below the yellow zone, it suggests a college is in the bottom quarter nationally. The graph reports in percentages. In the illustration above, university progression is 5% above expectation, progression to the Russell Group is 4% below expectation.

Secured University Destinations Analysis by Prior Attainment



The secured university destinations analysis by prior attainment graph explores performance across the prior attainment spectrum. The background shading represents national performance, and the thin 'lollipop sticks' represent performance in the individual institution. Performance is divided into three possible outcomes: progression to a Russell Group university; progression to another university; any other outcome.

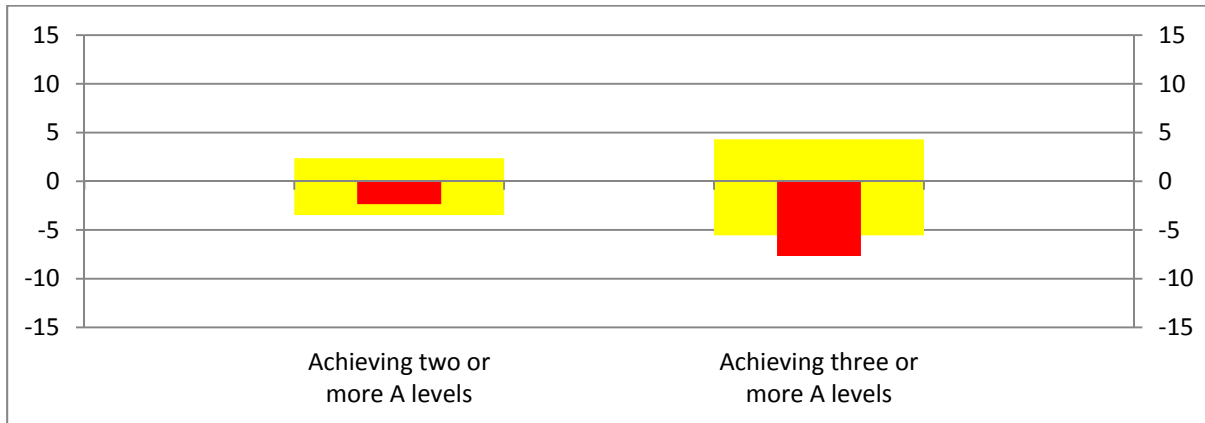
The report also contains four year prior attainment and secured progression trend analysis.

Retention analysis

The retention report follows the same structure as the destinations and student level success analysis. It follows the performance tables methodology of looking at those students who started studying A/AS level courses in a particular year and establishing the proportion of students who reached the end of at least one qualification.

Student level success analysis

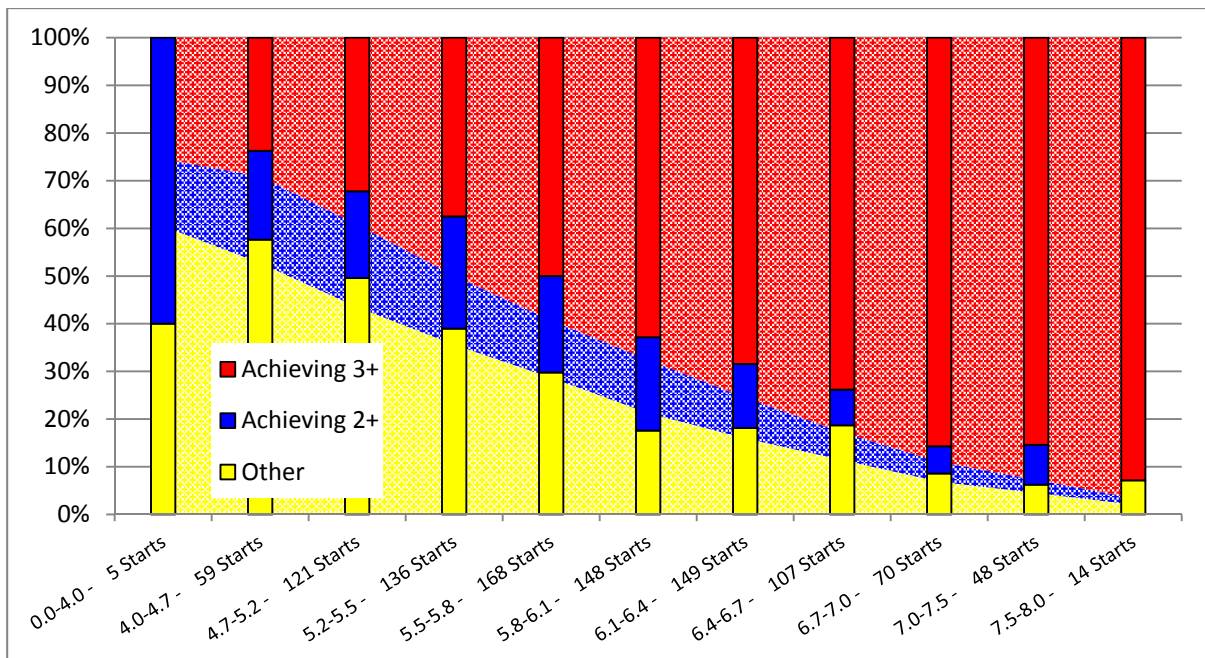
Six dimensions reports have also developed two measures of success at 'student level'. The analysis takes all those students starting three or more AS levels (and no BTEC qualifications) in September of year one, and looks at the proportion of these students that achieved two or more A levels, and three or more A levels two years later.



As with all six dimensions analysis, the expected level of performance is adjusted according to the prior attainment profile of the students involved. A score of zero suggests performance exactly in line with national standards.

The relationship between the two measures can often prove interesting. **Figure 5.4** shows the scores for a college which is getting a perfectly respectable proportion of its students to achieve at least two A levels, but is well below expectation when the proportion of students achieving three A levels is examined.

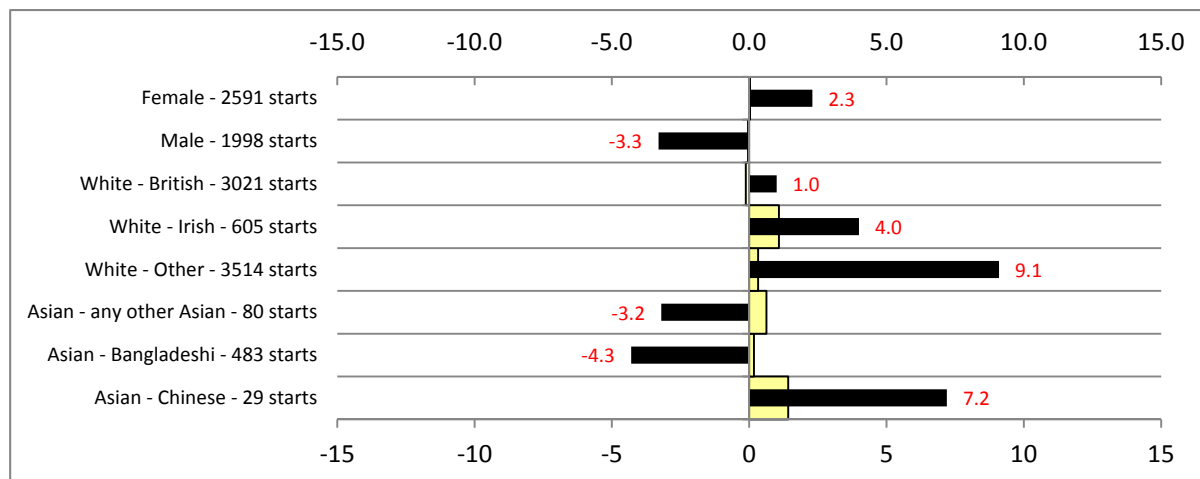
Figure 5.5: Whole student success by prior attainment band



Equal Opportunities Monitoring Reports

The equal opportunities monitoring reports compare success rates in a particular college with the patterns found nationally. In the reports, national performance is represented by the cream coloured bars, performance in the individual college is represented by black bars. The score in the college is given in red.

Equal opportunities monitoring - extract from an example report



It is worth being clear about what the national lines and college bars represent. Both bars have been adjusted for prior attainment and subject choice. At national level, the line reports on the question 'does the equality and diversity group in question perform in line with performance for all students in terms of success rates once prior attainment and subject choice have been taken into account.' In the extract above we see that the national performance for male and female students is so close to the national line that there is no cream bar extending above or below the zero line. There are a few categories where national performance is above what would be expected, and we see a cream bar extending from the zero line: White –Irish students and Asian-Chinese for example. Including these national variations allows us to avoid lazy assumptions about how well groups perform. It is often assumed that black groups in particular underperform in the English educational system. A college may explain away underperformance among black students by reference to the idea that such underperformance is normal. The background national data in the equality and diversity graphs reveals the true patterns of performance.

The performance in a particular college is overlaid on the national picture, and represented by the black bars. If a black bar extends out of the cream bar, it means that performance is more extreme than is found nationally. In the figure above we see that Asian – Chinese students have a success rate 7.2+ above what would be expected of similarly qualified students doing similar subjects nationally. Perhaps much more significant for this college is the figure for Asian – Bangladeshi students, which is well short of what would be expected nationally, and in contrast to Bangladeshi student nationally, who perform in line with expectation once prior attainment and subject are factored in. Note also that this college has a large cohort of Bangladeshi students (483 starts), so we cannot explain away difference to national performance by saying that the cohort is very small, and therefore any variation is statistically meaningless.

The whole college reporting also includes a summary of performance by equality and diversity category across three key measures: retention, success and points per completer.

Six Dimensions of Performance Report

Example College: E&D Summary Report 2013-14

Performance by high level equality and diversity category: 2013-14 outcomes: GCE AS level

	Starts	Retention				Success				Points Per Completer			
		Act	Exp	Act-Exp	Nat	Act	Exp	Act-Exp	Nat	Act	Exp	Act-Exp	Nat
All	3098	96.3	96.1	0.2	0.0	86.4	87.6	-1.1	0.0	45.0	45.7	-0.7	0.4
Female	1596	96.0	96.3	-0.3	-0.4	88.8	89.8	-1.0	-0.6	48.1	48.4	-0.4	0.0
Male	1501	96.7	95.9	0.8	0.5	83.9	85.2	-1.3	0.8	41.7	42.9	-1.1	0.9
White	2803	96.3	96.1	0.1	0.1	86.6	87.7	-1.1	-0.3	45.1	45.8	-0.6	0.6
All BME	294.3	97.2	96.0	1.2	-0.3	84.7	86.4	-1.7	1.0	43.6	45.3	-1.7	-0.2

This report provides a highly effective way to monitor performance, as the outcomes for each category are placed alongside each other with direct reference to how the group in question performs nationally. The extract below examines the data for retention.

	Starts	Retention			
		Act	Exp	Act-Exp	Nat
All	3098	96.3	96.1	0.2	0.0
Female	1596	96.0	96.3	-0.3	-0.4
Male	1501	96.7	95.9	0.8	0.5
White	2803	96.3	96.1	0.1	0.1
All BME	294.3	97.2	96.0	1.2	-0.3
Asian	120.7	98.1	96.0	2.1	0.2
Black	29	98.9	94.7	4.2	-1.2

The actual rate for the group concerned

The rate expected by the six dimensions model

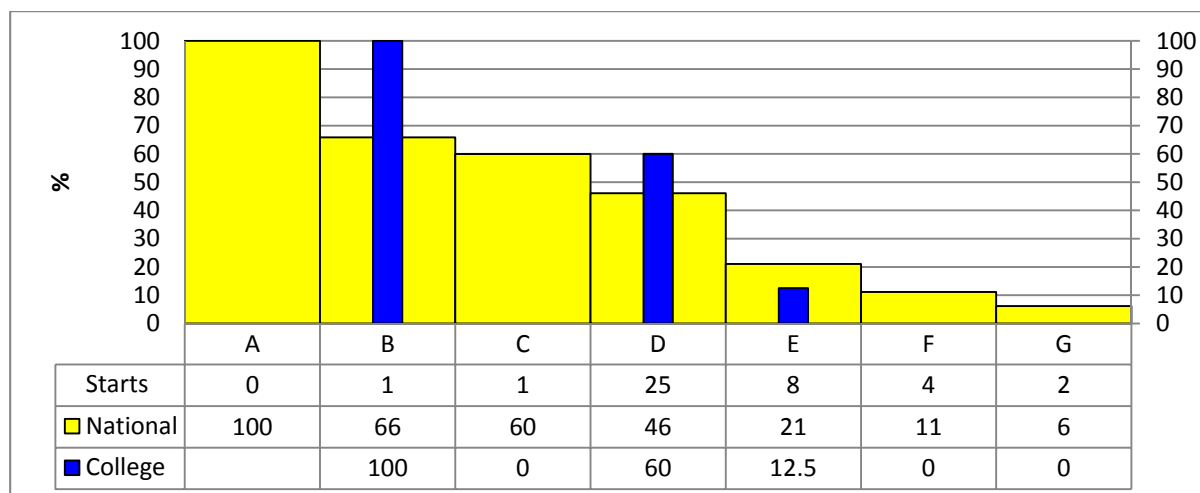
The difference between actual performance and expected performance

How the group in question performs nationally

The **Act** column gives, in effect, the raw retention rate for the college in question. The **Exp** column indicates the level of performance that would be expected of similarly qualified students pursuing the same courses nationally. The **Act-Exp** column indicates whether performance at the college is above or below national rates. The **Nat** column is designed to show whether the group in question tends to do well nationally, and provides a useful reference point for the college score.

GCSE Maths and English reports

The GCSE Maths and English re-sit analysis centres on looking at whether students in individual colleges perform as well as students with similar levels of prior attainment in the individual subject concerned. It is based on an analysis of all students attempting GCSE re-sit courses in sixth form colleges in 2013-14. In short, it allows students carrying a grade D from their school GCSE sitting to be compared with other students starting a re-sit course with a grade D.



The graph above relates to GCSE Mathematics. The wide yellow bars represent national performance; performance in the college concerned is represented by narrow blue bars. In the above example, the college has 25 students doing GCSE Mathematics who had previously secured a grade D in the subject. We see that nationally, 46% of these students secured an A*-C grade when they re-sat the qualification. At the college in question, 55% of students secured an A*-C grade.

Value Added Analysis			
Actual A*-C %	Expected A*-C %		Act - Exp
41.0	36.6		4.4

The analysis also indicated a value added score (Actual A*-C passes – Expected A*-C passes). This summarises whether as many GCSE passes as expected were attained, having adjusted for the prior attainment profile of the cohort. In our example, the proportion of students securing Maths GCSE is 41%. This initially looks worrying, but when national standards are factored into the analysis, we see that the expected A*-C rate would be just 36.6%, given the prior attainment profile of these students in GCSE Mathematics.

The presentation for GCSE English follows the same format. Any differences in the appearance of the graph are due to the different levels of performance in these subjects nationally.