



SSAT Journal 11

Spring 2018

ssat the schools, students
and teachers network

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Welcome

*Sue Williamson,
Chief Executive, SSAT*



I always enjoy reading the articles in the journal, particularly when the successes of students, teachers and school leaders are highlighted. I take it for granted that each term we will have a range of top quality stories written by practitioners and school leaders.

It has not always been the case that teachers have had the opportunity to publish their practice other than in an academic journal or to share what works with other colleagues. National networking for me started when my school became a member of the Technology Colleges Trust in 1994. For the first time I met fellow headteachers who wanted to talk about school improvement and how we might work together to achieve success for our schools. It was a career enhancing moment.

In 1994, I attended the national conference of the Technology Colleges College Trust and met the chairman, Sir Cyril Taylor. Cyril was a man on a mission – he wanted schools to work with business and industry; to engage with the new technologies; to use data to improve exam results and, most importantly, to prepare young people for the future. His focus was always on the most vulnerable child – they could succeed, they just needed more help.

Cyril died at the end of January. I was shocked. I thought he would go on forever – driven by his passion for education. I saw him the week before he died. His office walls hold dozens of photographs of Cyril with famous people who had helped with his various projects – Robert Kennedy, Margaret Thatcher, Tony Blair. Also the cartoons lampooning his work with specialist schools – Cyril enjoyed a joke. At our meeting, Cyril was his usual self – throwing out ideas and

asking how he might help. As I left, he said it was important that SSAT continued to work with schools to help every child to succeed, and particularly the vulnerable children.

We will – we are currently shaping our social justice work and planning on setting up a charity to administer this. More on this in a later edition, but for now, I want to focus on Cyril's legacy. He laid the foundations for the school-led system with the introduction of CTCs, which led to specialist schools and academies. He introduced many leading businessmen to education – Lord Harris, Garry Weston, Stanley Kalms – who invested money and time into the school system. Many headteachers/principals of the CTCs and specialist schools have gone on to be system leaders.

Cyril brought together the best thinkers and practitioners from a range of sectors to share their expertise with schools and school leaders. It was he who worked with professor David Jesson on the use of data and value-added measures. He always wanted to publicise the successes of schools and their students, and this has always been at the heart of SSAT's work.

There is so much more that I could write about. I am pleased that he visited my school when I was a headteacher and that I had the opportunity to work with him when I joined SSAT. Cyril would have loved the story of the student from Beckfoot Upper Heaton School who gained the apprenticeship with Aston Martin (page 47).

I hope you enjoy this edition of the journal, and we would be delighted to share your story with other schools and teachers. If you are interested in writing an article, please contact your Relationship Manager – RMTTeam@ssatuk.co.uk.



Spaced repetition learning – what we have learnt

Adam Sturdee,
St Augustine's Catholic College

It's not a panacea, but it is valuable. Adam Sturdee, Head of History and SSAT Lead Practitioner, St Augustine's Catholic College, explores the published research and his school's effective use of spaced learning

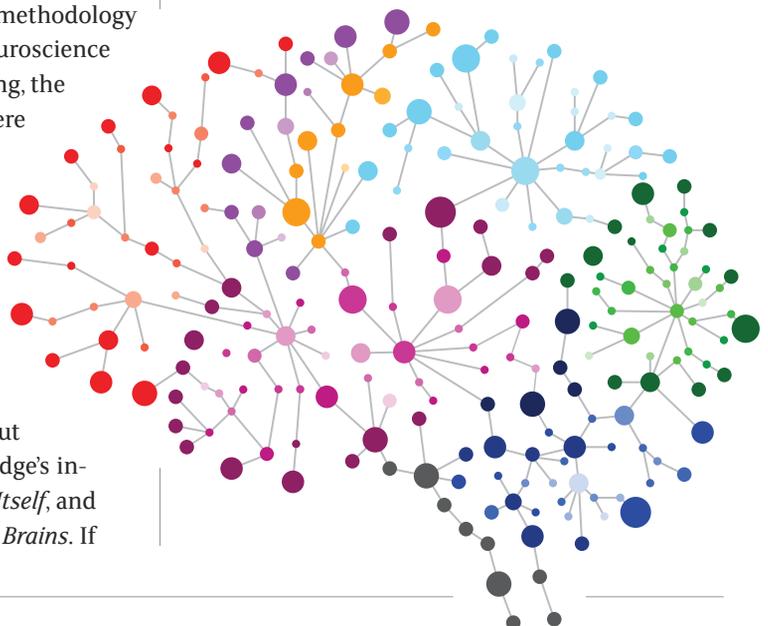
While looking for ways to support my students in their revision, in 2014 I started experimenting with spaced repetitive learning following a Google search along the lines of 'revision techniques – what works?'

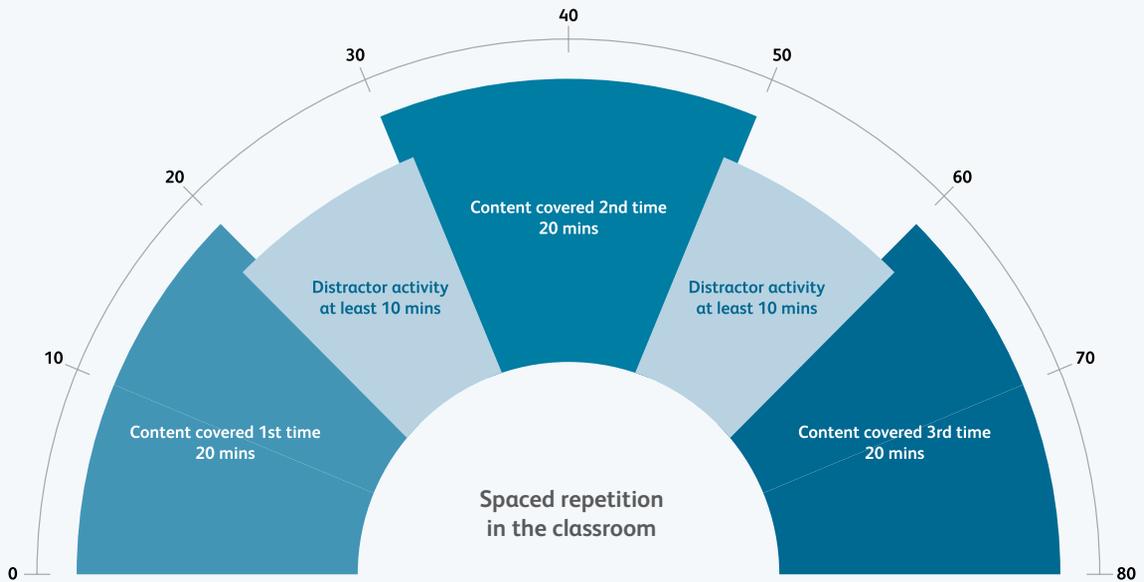
One of the links that stood out was Dr Paul Kelley's work with Monkseaton students, using spaced learning to secure long-term memories. Monkseaton and Learning Futures had published a practical PDF guide for teachers, which proved to be the start of a journey down a rabbit warren for me. It rapidly progressed from teaching methodology into the unfamiliar domains of neuroscience and cognitive psychology. In my reading, the transition probably occurred somewhere between Paul Kelley's *Making Minds: What's Wrong with Education and What Should We Do About It?* (2007, Routledge) and R Douglas Fields' 'Making Memories Stick' (Scientific American, February 2005).

Needless to say, I was soon hopelessly out of my depth in the literature, but not before stumbling on Norman Doidge's intriguing book, *The Brain that Changes Itself*, and Dick Swaab's easy-to-read *We Are Our Brains*. If

mind is ultimately the product being produced in schools, then developing a working understanding of the organ that manufactures it must be an advantage for teachers.

Upon emerging from the literature into a more familiar world of fast-approaching exams with anxious students and parents seeking practical guidance on revision, I started to implement spaced repetition in the classroom, initially in a very rudimentary way. In single sessions, we taught students to break up revision with 10-minute intervals, repeating the same content in slightly different ways over 3x15 minute sessions. (The advice we gave students was that session times should be determined by attention span; when you become mindful of losing concentration, take a break!) The





science behind the repetition is explained in Field's research uncovering the process by which long-term memories are formed and described here in the Learning Futures guide:

'Surprisingly, constant stimulation of the cell did not make the cells switch on. Stimulation had to be separated by gaps when the cell was not stimulated. The breakthrough came when the team "began to realise that the important factor was time". The length of stimulation was not vital, but the gap between stimulations was. This insight is the basis of Spaced Learning.'

Crucially, to ensure the knowledge pathways cells were not being 'switched on' I designed distractor tasks to be used in the classroom, including colouring in mandalas, making playdough animals and completing origami challenges. Colouring in the mandalas to calming music (search 'relaxing drum and base' or 'spa music' on YouTube) was a favourite with students, some of whom gained the additional benefit of learning meaningful relaxation in the unusual situation of being given 'down time' in a lesson.

I taught students the basic science behind spaced repetition and how to use it at home to revise. I set spaced repetition homeworks and educated parents, at revision evenings and by way of the school newsletter. Spaced learning displays around school explained the method and the science, and

I delivered Saturday revision sessions, before the summer exams, using the spaced repetition method.

High quality sleep

Feeding into spaced repetition methodology is the landmark 2001 study conducted by Matthew Wilson of MIT. Dr Wilson's work shed light on memory formation by studying the process in which rats dream about their activities during slow wave sleep as well as during REM sleep. Wilson's study underpins the importance of high-quality sleep to stabilise memories as a dynamic element in building solid long-term memories. This provided an opportunity to teach students about the importance of sleeping well in an age of omnipresent social media. We now advise our students (and more to the point, their parents!) that mobile phones should be left downstairs at all times and not taken into the bedroom. We also recommend that screen time is limited to an hour a day at key stage 3 and two hours a day at key stage 4.

In an attempt to test the effectiveness of the spaced repetition method, I conducted a crude experiment using two year 12 classes of largely equal ability. In the control group, students completed a 45-minute revision session on the causes of the American Civil War using memrise.com. The control group were not given a break. The experimental group were given the same memrise.com revision task, but with three 15-minute sessions separated by two five-minute



breaks. (Note: ideally breaks shouldn't be less than 10 minutes but to complete in an hour's lesson we had to reduce this time), in which they coloured in a mandala while listening to calming background music as the distractor activity.

In a recall test four weeks after the revision task, the group using spaced learning recalled almost twice as much as the control group

In both cases, students were given five minutes to complete the recall test four weeks later. The group using spaced learning recalled almost twice as much as the control group (average test score of 22 versus 11.8). Interesting too that overall the experimentals had accrued fewer points on the memorise activity (average of 12217 versus 13426), indicating

that on average they hadn't covered as much of the content as the controls and yet the test results suggested they recalled significantly more, almost twice as much.

In a wider sample of student voice, 80% of our students said they found the process effective or highly effective.

I am grateful that I started my informal action research into spaced repetition at about the same time Michael Gove was putting the final touches to his ED Hirsch-inspired GCSEs. The increased emphasis on a knowledge curriculum is apparent across the board but arguably nowhere more so than in the new history GCSEs. Our students now cover four topics, collectively spanning almost 1000 years. We have developed our understanding and application of spaced learning to support our students with this challenge.



For the building of secure long-term memories, the gap between exposures to the stimulus material can be systematically lengthened; forgetting is an important part of the process. As primarytimery.com points out in her excellent blog post, *Memory not memories – teaching for long term learning*, what we are trying to build is semantic, not episodic memories. (The episodic memories formed in the prepare for learning/presenting of new information stages are a minimal part of the overall product, serving the short-term outcomes of engagement and capturing imagination at the start of a learning cycle.)

To this end we have delivered the new specification in the first time of teaching by testing all delivered content in extensive knowledge recall tests (100+ questions) every term, so as to exploit the testing effect, also explained very clearly in primarytimery.com's blog post. Peer-assessed tests reduce workload for teachers and produce instant, usable data. Student scores are captured straight after the test and inform teacher and department planning and intervention, reports to parents, tutors and the head of year. More importantly, the process reinforces knowledge and provides feedback to students on the quality of their revision methodology and long-term memories.

No panacea, but valid methodology

In a 2009 Guardian article, Alan Smithers, professor of education at the University of Buckingham, made the valid point that the idea of spaced learning as a panacea is 'a harmful exaggeration'.

Notwithstanding, it has its place as valid methodology to build knowledge.

Where to from here? We'll be collecting student and parent voice on the termly knowledge recall test process and analysing the results of all tests taken over two years with our current year 11 cohort. In term four we will be writing to the parents of underperforming year 10 and 11 students with a guide to spaced learning and how it can be applied at home to support their children. In the summer we will review the teaching timetable for our four GCSE topics, with a view to identifying more sophisticated ways to reinforce content over the two years, using spaced learning with increasing gaps.

In 2017 the EEF in collaboration with Queen's University Belfast and 15 schools assessed the impact of spaced learning. Their report can be found here: <https://educationendowmentfoundation.org.uk/evaluation/projects/spaced-learning>

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What does great learning look like?

*Abby Chivers,
Bristnall Hall Academy*

Abby Chivers, Assistant Principal, Bristnall Hall Academy, explains their effective focus on learner behaviour aligned with teacher collaboration on strategies

As a school that has social deprivation indicators significantly above the national average, we have a compelling focus on raising the aspirations of all learners. This has been at the forefront of all our school improvement work over the last four years.

A key aspect of our journey has been to shape students' understanding of what great learning looks like. One of our greatest challenges was combating students' fear of challenge which, in some cases, was because of a lack of self-belief. Comments such as 'I'm no good at this subject' became an invisible barrier for some students' low expectations of themselves. This was exacerbated by the GCSE reforms with one student commenting that they would be 'happy with a grade 4 because the GCSEs are

harder now.' While this was not the view of all, an analysis of progress data and the use of PASS data (pupil attitudes to self and school) showed a relationship between low expectations, low aspirations and underachievement. This inspired a discussion among staff about the kind of learner behaviour we need to cultivate to ensure that all learners are equipped to meet their full potential.

The starting point was standardising what we expect great



There are many ways students can learn the value of effort as the path to mastery

learner behaviour to look like. This was ascertained through staff and student focus groups in which they were asked: ‘Think about a learner who makes great progress. How might you describe their learning behaviour?’ This helped to establish the ten key qualities we wanted to nurture in all learners: risk taking, resilience, flexibility, engagement, determination, relentlessness, curiosity, confident communicators, seekers of knowledge and pride. The next step was to make tangible what a ‘curious’ learner and so forth looks like, which led to the formulation of key behaviours, written from the perspective of the learner, relating to the ten characteristics.

Revising peer observation

To ensure an investment by all stakeholders in our guiding principles, it was paramount that these qualities should permeate through the academy. This prompted a revision of how we observe our peers. The learner behaviours became the standards by which we began to observe lessons, positioning the staff as facilitators, who create opportunities through planning and teaching, and the students as responsible for their own learning. This has been instrumental in ensuring a consistent learning experience across the curriculum for all, and holding students to account through the promotion of high expectations.

In order to make the message explicit, every learner engaged in pupil workshops, planned to role model the learner behaviours and set the bar high. It also provided a vehicle to promote high aspirations and dispel the

Challenge RISK TAKING	Support RESILIENCE	Independence and homework FLEXIBILITY	Engagement ENGAGED	
C1: Students are challenged throughout the lesson by accessing work that is pitched at where they need to be which allows them to maximise their progress.	S1: Students are on different learning journeys (where appropriate) but aspire to outcomes pitched at where they need to be.	I1: Students work as independently as possible at points/ throughout the lesson.	E1: Students remain on task and enjoy engaging in challenging work.	
A M S NE NA	A M S NE NA	A M S NE NA	A M S NE NA	
C2: Students complete work that is pitched correctly to allow them to make maximum progress.	S2: Students make use of support available to them and know the steps they need to take to succeed.	I2: Students are resourceful; they make use of information, other learners and the teacher effectively.	E2: Students participate and know that there is nowhere to hide.	
A M S NE NA	A M S NE NA	A M S NE NA	A M S NE NA	
C3: Students, where appropriate, can use high order thinking skills to complete activities and to answer questions.	S3: Students make at least the expected progress because they use all available support as a bridge to their learning.	I3: Students think creatively to find solutions to problems.	E3: Students work confidently independently and with others, taking responsibility for their part.	
A M S NE NA	A M S NE NA	A M S NE NA	A M S NE NA	
C4: Students feel confident taking risks and learning from mistakes because there is a positive atmosphere created through stretch, challenge and collaboration		I4: Students welcome and complete challenging homework and hand it in on time		
A M S NE NA		A M S NE NA		
		I5: Where opportunities arise, students lead their own learning, planning how to go about it.		
		A M S NE NA		

Figure 1 Learner behaviour standards

myth of fixed ability and talent. The workshops discussed how students who have a fixed mindset will often spend their time avoiding challenges that may threaten their self-beliefs, instead of welcoming them. They also believe that talent alone, not effort, creates success.

In the workshops we promoted growth mindset, through which students recognise that their

basic qualities can be developed through dedication and hard work – that effort is the path to mastery. This view creates a love of learning and a resilience that is essential for lifelong success.

Pupil evaluations showed that the sessions were well received. Furthermore, they provided stimulus for discussion between staff and students about the kind of behaviours and mindset

	Progress DETERMINED	Pace RELENTLESS	Marking and feedback SEEK AND USE FEEDBACK	Questioning CURIOUS	Basic skills COMMUNICATION SKILLS	Subject knowledge/ depth of learning MAKING CONNECTIONS	Behaviour for learning PROUD
	Pr1: Students take steps that allow them to make the expected, or better, progress during the lesson and over time.	P1: Students remain focused which allows them to work at their full capacity throughout the lesson.	M1: Students respond meaningfully to teacher marking in green pen.	Q1: Students answer questions during the lesson that helps them to progress their learning and develop higher order thinking skills.	B1: Students make use of available resources to improve their literacy and numeracy skills.	D1: Students use subject specific terminology verbally and in their written work.	BL1: Students show respect to all and recognise that others have different beliefs and attitudes.
	A M S NE NA	A M S NE NA	A M S NE NA	A M S NE NA	A M S NE NA	A M S NE NA	A M S NE NA
	Pr2: Students understand the learning outcomes and know what steps they need to take to meet them.	P2: When students have finished tasks they move on to more challenging activities, ensuring that there are no breaks in the learning.	M2: Students, when referring to their work, can discuss areas of strength; targets for improvement and their next steps to make progress.	Q2: Students ask thoughtful questions to add, develop, challenge and deepen (ACDC) their learning.	B2: Students are proactive in correcting literacy and numeracy errors in their work and ensure that the same errors are not made again.	D2: Students make use of opportunities to revisit prior knowledge, making appropriate links across topics and subjects.	BL2: Students value learning; they strive to do their best.
	A M S NE NA	A M S NE NA	A M S NE NA	A M S NE NA	A M S NE NA	A M S NE NA	A M S NE NA
	Pr3: Students demonstrate their understanding (through regular learning checks) in the lesson and over time.		M3: Where appropriate, students engage in self and peer assessment against marking criteria and use this to set realistic targets for themselves.		B3: Students are aware of the zero tolerance words and strive to learn the correct spelling.	D3: Students build on their knowledge during each activity.	BL3: Students approach learning with the understanding that determination and hard work can improve abilities.
	A M S NE NA		A M S NE NA		A M S NE NA	A M S NE NA	A M S NE NA
	Pr4: Students are 'busy' learning in the lesson and make constant steps towards meeting learning outcomes in the lesson and over time.		M4: When a second attempt at learning is made, students use feedback effectively to make improvements.		B4: Students speak and write in full sentences	D4: Students deepen their knowledge and understanding through activities that involve high order thinking (using Bloom's Taxonomy).	BL4: Students arrive punctually and are prepared for learning with the correct equipment.
	A M S NE NA		A M S NE NA		A M S NE NA	A M S NE NA	A M S NE NA
						D5: Students offer detailed explanations by expanding their ideas.	BL5: Students take pride in the presentation of their work, meeting the expectations of the BHA presentation poster.
						A M S NE NA	A M S NE NA

A - All learners **M** - Most learners **S** - Some learners **NE** - No evidence **NA** - Not applicable

they should be embracing before each activity. To ensure that high expectations live in the fabric of the school, pupil speak posters, delineating concrete examples of positive learner behaviour for each of the ten qualities, are displayed in every classroom.

Concurrently, staff received training on how to ensure that positive learner behaviours are nurtured and planned for.

Observing practice against the new learner behaviours was instrumental in empowering staff to evaluate their own practice. It also provided teaching and learning data that encouraged leaders to ask:

- » To what extent are our students demonstrating the necessary behaviours that secure excellent outcomes?
- » To what extent are our

teachers promoting high aspirations through planning and delivery?

Collecting teaching and learning data by student mindset has helped leaders to harness expertise across the academy and offer bespoke and targeted support to move everyone's practice forward. Moreover, the lead practitioners have each adopted a strand to develop, offering CPL





Teachers' new strategies took some unexpected routes

opportunities, video case studies and 'strategy of the fortnight' to inspire change.

A whole-school CPD evaluation showed teachers want greater opportunities to collaboratively plan and evaluate new strategies

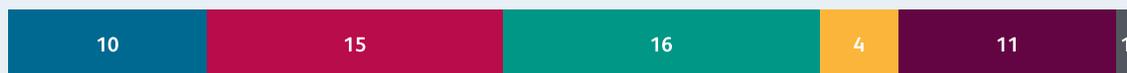
Following an initial observation of all staff in the first term,

teachers evaluated their practice, informed by the visual teaching and learning graph, and each identified three standards they needed to nurture through planning and delivery in order to improve their everyday practice. They then chose from a menu of CPD sessions, led by the lead practitioners. Following the training sessions, staff engaged in three 'blended learning' opportunities: tasks related to the CPD workshops attended, with a focus on a plan, do, review

approach. Each staff member has an online folder where they upload their blended learning activities, which then provides stimulus for discussion with the lead practitioner responsible for that particular strand. This has been instrumental in encouraging staff 'buy in'. Feedback from a whole-school CPD evaluation carried out at the beginning of the academic year highlighted that teachers want greater opportunities to collaboratively plan and evaluate new

Teaching against the new learner behaviour standards

Students think creatively to find solutions to problems



Students welcome and complete challenging homework and hand it in on time



Where opportunities arise, students lead their own learning, planning how to go about it



Students remain on task and enjoy engaging in challenging work



Students participate and know that there is nowhere to hide



Students work confidently independently and with others, taking responsibility for their part



Figure 2 Visual report of teaching against the new learner behaviour standards

strategies. Devoting CPD hours to the implementation of the new approach to standards has given it credence and ensured it is a whole school priority.

Work-related learning

Alongside the work we have done to develop staff, the welfare team and our high potential coordinator have been pivotal in ensuring that all students are inspired and motivated to learn through the expansion of careers and enterprise opportunities. All students

now engage in a work-related learning project every year from years 7-11, offering the opportunity to engage in at least five work-related learning experiences.

Careers evenings and focus weeks for all students have helped to ensure that all learners, particularly those who are most disadvantaged, have high aspirations and know how to achieve them. Building the ten learner behaviours into the

careers programme, and signposting the behaviours required to carve out a successful future career, helped students to understand the relationship between aspirations, expectations and school achievement.

While we consider ourselves to be on a constant journey progress 8 outcomes, particularly for those who are most disadvantaged, place Bristnall Hall Academy above the national average for all student groups.

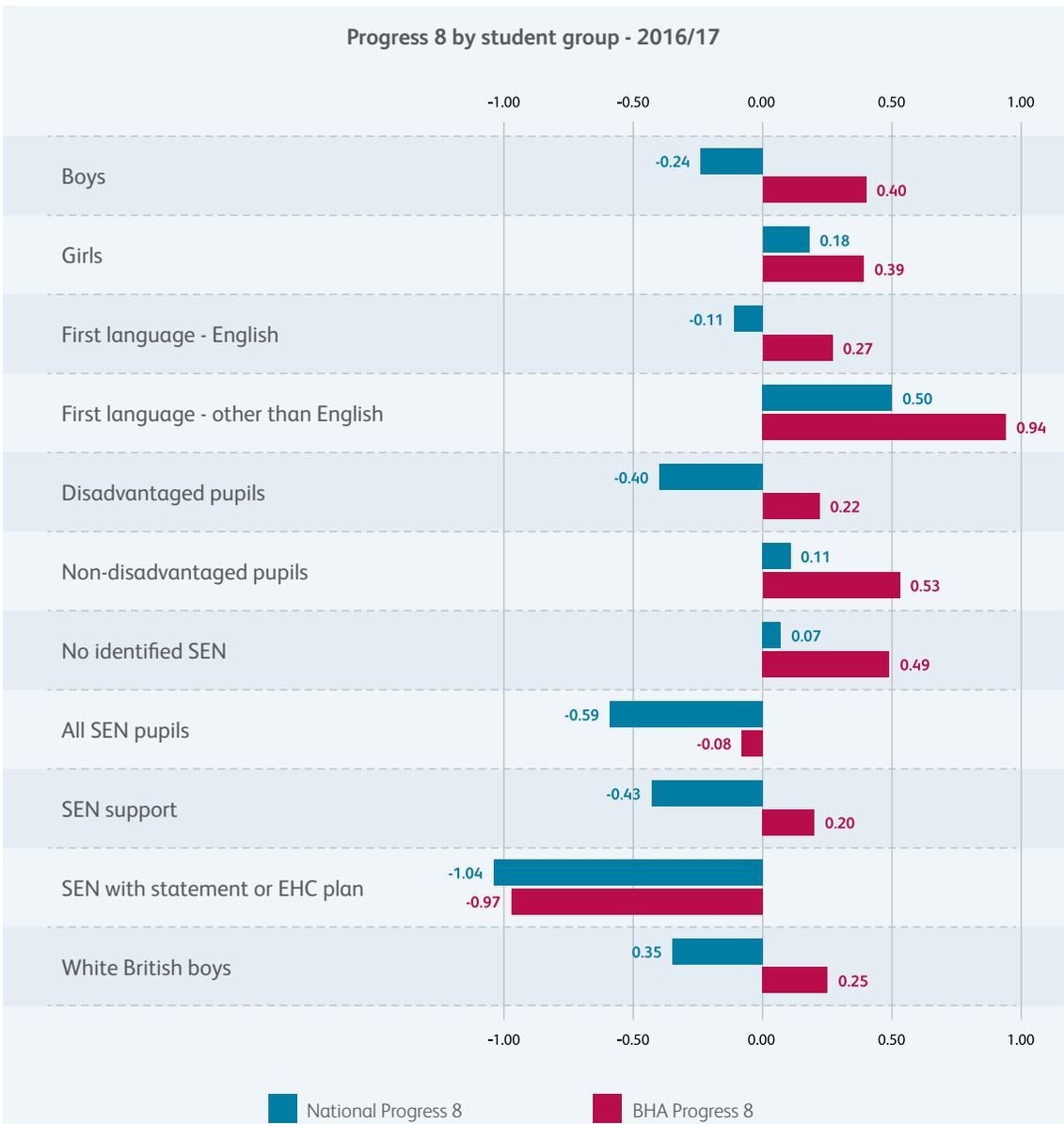


Figure 3 BHA Progress 8 by student group compared to national average

Aligning high aspirations and high expectations through the expansion of work-related learning and the implementation of tangible learner behaviours has undoubtedly contributed to excellent academic outcomes. What we have learnt as an academy is that aspirations can help students improve their

achievement – but it will be much more influential if they are accompanied with high behavioural expectations as well. Motivating students to expect more of themselves has been a trigger to unlocking the potential of all learners at Bristnall Hall Academy.

Students with a growth mindset recognise that effort is the path to mastery, which leads to resilience and a love of learning