

Case Study:

Astrea Academy



How students learn best is at heart of education and is at the heart of much debate. Ask anyone and they'll likely have an opinion: learners engage the most when they're encouraged to explore ideas freely and critically; pupils work best when they're learning within the confines of detailed explanations and structured challenges. Do students learn better when they're the ones driving their education, or do they achieve more through teacher-led instruction?

Teacher-led approach through Direct Instruction

Direct Instruction (DI) is a model that sits on the side of teacher-led instruction. Proven to work in numerous studies, many in the education space believe its popularity is on the up, with more time at education conferences devoted to it and an increasing number of schools using it.

One of the individuals who believe in the efficacy of DI is Kevin Surrey. Kevin has taught Direct Instruction for years and has seen the huge impact it has on individuals. He's now a coach for an academy trust, bringing teachers new to the DI model up-to-speed with best practice approaches. He partners closely with a (his) team of teachers, making sure they're as impactful as they can be using DI methods. Jon Owen is also a coach for the academy trust and between them, the central maths team, and the National of Institute of Direct Instruction implementation managers, have a strong infrastructure in place using the NIFDI model of implementation to ensure that students receive the best possible learning experience.

Kevin and Jon's experience at the Astrea Academy Trust—a collection of schools with hubs in South Yorkshire and Cambridgeshire—lends itself well to the arguments focused on the efficacy of DI and a structured, teacher-led approach.

Embracing the process in setting up DI classes

Kevin explained that the Astrea Academy had made the decision to use DI for the academic year beginning in Autumn 2022. As part of that drive, students had been asked to sit placements tests in the summer of 2022 which would pinpoint the learners who would benefit from the additional support using the DI model.

He highlighted that the Corrective Maths (the programme using DI) placement tests had been eye-opening in terms of the numbers of students who

needed the help with the basic skills in Mathematics but was unsurprised by the results.

"We can easily overlook some of the major problems all secondary schools face when developing their own curricula and this is that many children have the mastered the basic skills to access what is expected from them in Year 7. A fine example of this is in reading we boast in the UK about our reading levels, with 75% of students reading at their required levels. That's great, but the way I see it is that 1 in 4 students aren't performing at the expected levels, and I find that quite shocking. In Maths these same realities exist, if not on a more alarming scale."

Kevin and his colleagues at Astrea Academy reviewed the placement test data and set up six classes, with just under 90 students placed into these groups across 2 schools.

Timing is always important for setting up new practices and Kevin shared that the placement tests were undertaken in June and July, in order for the summer to be used preparing for the lessons, forming timetables and finalising classes. "Getting the tests done early meant we were able to hit the ground running, which is why we've seen the results we have."

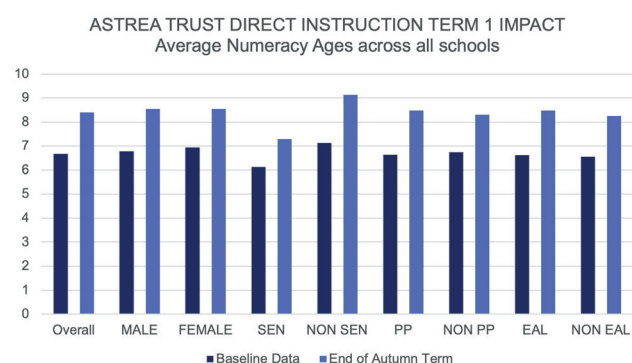


When it comes to the results, context is key.

The 90 students coming into the Direct Instruction cohorts in the six classes when they started the academic year had an average numeracy age of 6.67.

Over the course of one term, across all education groups (SEN, Pupil premium, boys, girls and EAL), the average numeracy age has grown 1.75 years. “This is regardless of learner type and their gender,” Kevin highlighted.

Kevin was especially keen to draw on the results of the SEN learners. For him, the fact that the pupils in this category are seeing an uplift despite them needing the lesson content or structure adjusted has an impact on teaching. “If you can identify the starting points and teach students from there, then this proves every child can succeed without any adaptations to the lessons. It frees teachers up to be able to concentrate on teaching and responding to students’ performance errors as opposed to needing to differentiate.”



“Looking forward, it is hypothesised that this growth will slow slightly in Year 2 as students perform the numeracy test because they are working nearer to their actual age due to nature of the testing and the higher results at the end of the first year. More rapid gains are seen in Year 1 due to the emphasis on the 4 number calculations and place value and students learning to embrace the subject.”

Despite the gains slowing, it is still predicted that students on Corrective Maths will be working above age expected levels in arithmetic by the end of Year 8 that will set them up to have a firm foundation as they transition into the traditional curriculum in KS4.

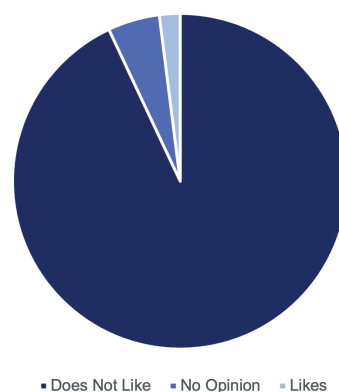
Therefore, it is projected that students who enter school with predicted GCSE grades below 4 will be able to achieve Grade 4, 5 or above.

Honing in on SEN learners and their progress in increasing their numeracy age by 1.18 years in a term, Kevin pointed out that they too will meet their goals “having mastered all the basic skills to be accessing age-appropriate content by the end of Key Stage 3 and into Key Stage 4.”

Qualitative results

Looking at the data is just one way of interpreting the uplift in numeracy comprehension. Kevin highlighted the results of a survey the team had completed with the learners in the DI group focusing on their attitudes to Maths.

How students view Mathematics on arrival to secondary school



This data was gathered from student responses to questions posed to them.

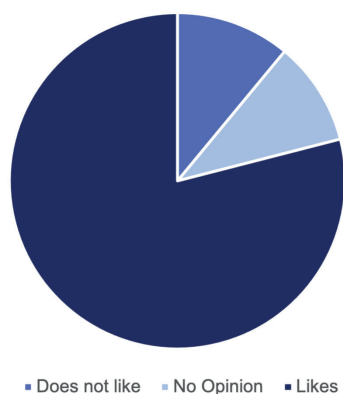
During the introduction to Corrective Maths presentation, Kevin shared that the students were asked if they liked Maths. The results showed 94% of students said they disliked it; 5% had no opinion and 2% liked it.

Analysis of results

“You can see from the results that all learner groups have benefitted from the early placement tests and their first term with DI. They’ve all made very good progress.”

“This data looks at the progress after one term. Our projection is that over an academic year students will add 5.1 years to their numeracy ages. This projection will ensure many students will be working nearer their actual age by the end of the first year and all students can be working above and beyond their actual age by the end of the second year.”

How students view Mathematics after 1 term of Corrective Maths



By the end of the first term when students were asked the same question. This time, 79% students now reported that they enjoyed Maths, whereas 10% still did not enjoy it and 11% had no opinion.

The main reasons incited for the students enjoying the Maths was that they felt successful and rewarded. The main reason for students not enjoying Maths was it was boring.

Kevin accepts that the results from the learners around their enjoyment of Maths “must be taken lightly—they may be saying what they believe the researchers wants to hear rather than their true opinion.” That being said, Kevin is confident that they were “being very honest because I see the same student attitudes and parental testimonies year after year.”

Student feedback tells a similar story.

Kevin and Jon have collected a number of statements from their students which lends itself to his argument around their learners being truthful. The quotes included below are from the same group of pupils. They all show the impact of DI on both their performance and their confidence.

“I wish that I had this Maths in Primary School. I used to get shouted at for not getting all my work done even though I never understood it but now we repeat things and are corrected and I’m getting better at Maths.”

“I like it [Corrective Maths] because things are explained and we gets lots of practice.”

“In Year 6 we did different things everyday because we had to pass our SATs, but I did not always understand things, but we never went back to it.”

“I thought we were doing babyish Maths, but we are now doing hard worded problems and I understand them because I know my facts really well.”

“I hated myself in Primary School because I was the only one who did not understand the work and my friends were doing harder questions. Now we move on together and I feel more confident.”

“I was nervous of the chanting of answers but now I am more confident and am getting better at Maths. When I get asked a question I don’t mind answering and the teacher does this weird thing to help us if we get it wrong and we repeat the questions. Sometimes this is frustrating, but we all end up knowing the answers.”

Kevin also nods to the testimonies of parents at parents’ evenings as good sources of evidence. “Parents were reporting to teachers that their child has a newfound confidence at school with Mathematics and that in many cases Maths was their child’s favourite subject now after years of disengagement from the subject. This is reflected in a slow but positive upturn in homework completion and students accessing homework.”

He shared one comment from a parent that emphasises this point well.

“I can’t believe how my child has gained so much enthusiasm for Maths. At Primary School she did not like Maths but now she embraces homework and I was amazed when she said Maths was their favourite subject and the Maths teacher was now their favourite teacher.”



Successful implementation

Kevin is delighted with the progress they have seen in a short time in implementing DI. “Students are making good progress in Corrective Maths in terms of academic numeracy age data and attainment as well as growing self-esteem and confidence.”

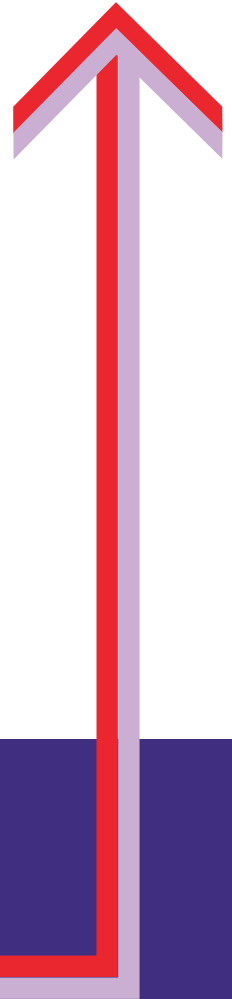
Kevin highlighted a quote from Engelmann, the creator of the Direct Instruction methodology:

“All educators, in any setting can uniformly teach any child to learn, even against the odds and that those very same children will improve in terms of their own self-image and with results that are long range and stable.”

Kevin refers to this quote stating, “It stands the test of time and with a fully supported implementation of Direct Instruction there is a solution to many of the problems we face. We inherit students in Year 7 with massive gaps in their knowledge and use the remedial Corrective Maths to support them. We just need school leaders to be brave enough to fully embrace DI in Primary Schools, then truly every child would succeed with no need to use such remedial programmes in Secondary schools.”

For further information on DI, please visit mheducation.co.uk/schools

Any queries relating to implementation and training of Direct Instruction, please contact the Direct Instruction Hubs. McGraw Hill are proud to be working in partnership with them to help you on your DI journey.



mheducation.co.uk

McGraw Hill is a leading global education company that partners with millions of educators, learners and professionals around the world. Recognizing their diverse needs, we build trusted content, flexible tools and powerful digital platforms to help them achieve success on their own terms. Through our commitment to equity, accessibility and inclusion, we foster a culture of belonging that respects and reflects the diversity of the communities, learners and educators we serve. McGraw Hill has over 40 offices across North America, Asia, Australia, Europe, the Middle East and South America, and makes its learning solutions for PreK-12, higher education, professionals and others available in more than 80 languages.