NORD ANGLIA EDUCATION

BUILDING BETTER THINKERS

NORD ANGLIA EDUCATION'S GLOBAL METACOGNITION RESEARCH

ABOUT NORD ANGLIA EDUCATION

As a leading international schools organisation, we're shaping a generation of creative and resilient global citizens who graduate from our schools with everything they need for success, whatever they choose to be or do in life.

Our strong academic foundations combine world-class teaching and curricula with cutting-edge technology and facilities, creating learning experiences like no other. Inside and outside of the classroom, we inspire our students to achieve more than they ever thought possible.

No two children learn the same way, which is why our schools around the world personalise learning to what works best for every student. Inspired by our high-quality teachers, our students achieve outstanding academic results and go on to study at the world's top universities.

Our Nord Anglia global family includes 80+ day and boarding schools in 33 countries, teaching over 90,000 students from ages 3 to 18.

To learn more or apply for a place for your child at one of our schools, go to **nordangliaeducation.com**.

ABOUT BOSTON COLLEGE AND THE LYNCH SCHOOL OF EDUCATION AND HUMAN DEVELOPMENT

Boston College, a leading global research university founded in 1863, is committed to academic excellence and the holistic development of students. Its Lynch School of Education and Human Development is renowned for advancing education, psychology, and social work through innovative research and practice.

Together, they are at the forefront of exploring metacognition, helping students and educators understand how reflective thinking enhances learning and development.

Through its commitment to innovation and interdisciplinary collaboration, Boston College empowers individuals to deepen their understanding of learning processes, equipping them with the skills to excel academically and contribute meaningfully to society.

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INTRODUCTION

STARTING WITH THE METACOGNITION PROJECT'S 'WHY' MOMENT.

In 2023, 27 Nord Anglia Education schools embarked on a bold new research project to help their students try to understand themselves and their thinking better.

It's an idea that sounds simple, and like something schools naturally do every day. But coaching our brains to think better, or building metacognitive skills, goes beyond teaching Maths, Physics or English. It requires self-awareness, a level of confidence to question one's approach and strategy in tackling a task or idea, and a willingness to change course when things are not working out.

You might also recognise the importance of these skills in workplaces and in the world.

Consider the colleague who is excellent at writing a pitch or computing complex formulas—with good content knowledge—but who commits early to an approach and refuses to take feedback, adapt and change course. These 'thinking-about-thinking' skills—as they are sometimes referred to—are critical to innovation, being resilient when things go wrong and persisting with difficult and uncomfortable tasks.

Being able to self-assess and adapt makes us more thoughtful and able to be more collaborative.

Just as students become better at Maths or analysing literature as school progresses, metacognition unfolds in adolescence. But unlike Maths or English, thinking skills are harder to identify and harder yet to measure. They are rarely explicitly taught. But in a world of ubiquitous technology, where artificial intelligence can collect, interpret, and synthesise content, these skills are not nice-to-have but necessary for current and future success.

Knowing who and what to trust, including ourselves, will help students navigate the flood of information around them—especially with the tsunami of generative AI.

That's why Nord Anglia Education, teamed up with researchers at Boston College a year ago to develop an evidence-based programme to help students understand what metacognition is and also develop ways to intentionally weave these thinking skills into its teaching and learning. Just as Nord Anglia's students must learn to think critically about a historical text or a character in a novel or a question in Biology, metacognitive skills need to be taught—not as an add-on but throughout the curriculum.

To do this important weaving, Nord Anglia used its 'Learner Ambitions', which are a set of skills and mindsets the international schools group identified a number of years ago as key attributes for students to develop. These attributes include: compassion, creativity, commitment, critical thinking, curiosity and collaboration.

> *"These 'thinking-about-thinking' skills—as they are sometimes referred to—are critical to innovation, being resilient when things go wrong and persisting with difficult and uncomfortable tasks."*

02
METACOGNITION

RESEARCH SHOWS IT CAN ‘SUPERCHARGE’ LEARNING.

It’s most likely you learned a lot of Maths and Science and vocabulary, and writing skills when you were in school. But were you taught to reflect on your learning or to consider if the approach you were taking was a wise one? Did you think about the strategy you used to study, or did you just underline the text and take notes on important things?

These thinking and reflection skills are called metacognition and research shows they can supercharge learning.

Steve Fleming, a professor of Cognitive Neuroscience at University College London and an advisor on Nord Anglia’s metacognition project, likes to use the example of revising for an exam. When a child asks, ‘Do I know this topic well?’ they’re making a cognitive judgment about their knowledge and memory that has consequences for what they do next. If they know themselves and know what they know, they can:

- Move on, because they understand it.
- Ask a teacher or parent because they are confused.
- Go back to their revision notes because they understood the first part but not the second.

“How that little loop of metacognition is working can be the difference between acing the exam and not doing so well, and that is entirely independent of your raw skill or aptitude in that particular subject area,” Fleming explains. A student may be a Maths wizard but won’t succeed if they don’t recognise the gaps in their knowledge, “if they are not self-aware of what they need to learn, they probably won’t learn it,” he explains.

It’s clear how metacognitive awareness is critical in an exam. But it’s equally important when a student is collaborating on a team. Am I contributing to the goals of the project? Am I working well with others? Am I listening to others and offering constructive feedback? It’s essential for creativity and coming up with novel and useful ideas. It’s useful for building persistence or the ability to stay committed to something. Am I giving up before I really get this? Why? What can I do to stick with it?

These thinking and reflection skills are called metacognition and research shows they can supercharge learning.

METACOGNITION. THE THREE COMPONENTS.

1 SELF-AWARENESS

Are you paying attention? Daydreaming? Are you confused or overwhelmed?

“This is knowing yourself as a learner, setting goals and knowing the strategies that will improve your thinking,” says Dr Kate Erricker, Group Head of Education Research at Nord Anglia Education.

2 REGULATION

Can you change up strategies? If you started writing an essay that makes no sense, can you pivot and find a new way, maybe making an outline rather than quickly writing whatever comes to mind? Can you persist when the work gets tough and not pretend that you get it just to move on?

“Regulation is about knowing what to do in our learning and when to do it,” says Erricker.

3 TRANSFER

Do you get an idea enough to think about it in a new context? If you understand fractions, can you apply that to converting cups to millilitres when cooking?

Metacognition has profound implications for learning. “It is the awareness of your strengths and challenges, and the ability to articulate and pursue your goals, understanding your own motivation,” Erricker explains. “It is how you control and take responsibility for your learning, and the ability to take the problem-solving skills you use in class and apply them in the real world.”

Adults may not think about their own metacognitive abilities because they have become automatic. We forget that, like most skills, they take time to develop. “It’s not something that kids are natural at,” Steve Fleming, the UCL professor of Cognitive Neuroscience explains. “They keep needing to work at it through their teenage years.”

“It is the awareness of your strengths and challenges, and the ability to articulate and pursue your goals, understanding your own motivation,” Erricker explains. “It is how you control and take responsibility for your learning, and the ability to take the problem-solving skills you use in class and apply them in the real world.”

03

NORD ANGLIA'S 'LEARNER AMBITIONS' AND 'THINKING ROUTINES'

If we want more compassionate, creative, committed, and critical thinkers, what are the best ways to build those skills and, importantly, to record their growth of them? How do we make sure every student is working towards becoming more curious thinkers who collaborate well? How will we know we are making progress towards developing the ambitions we know to be important?

With Nord Anglia's research partners, the team identified the skills and attributes underpinning each Learner Ambition. They identified thinking routines to support students in practicing and reflecting on those skills and attributes. Critically, they developed the technology to document evidence of them—Nord Anglia's Learner Portfolio—where teachers and students can document instances and examples of curiosity and compassion. With this, teachers can know if students are developing these critical life skills and pinpoint the learning experiences that make this happen.

To design the Thinking Routines—the routines and practices to develop metacognitive skills—Nord Anglia drew on the work of Project Zero, a research centre at the Harvard Graduate School of Education, while also looking to its teachers to develop ideas and routines that work for them.

Here's how it unfolds in classrooms: For the first six weeks of a term, a classroom will focus on one Learner Ambition such as curiosity. Teachers introduce kids to the concept of curiosity and ask them some baseline questions like: How curious are you? What strategies do you have to be curious?

They then introduce the students to a Thinking Routine that goes with curiosity, which the students can apply in all their lessons over the next six weeks. For example, one is called "See, Think, Wonder". When a student sees something, the teacher will ask about what they observe or notice; ask what thoughts arise; prompt them to consider what they wonder? The teachers will ask what questions students have (questioning being a key metacognitive skill).

The students set goals around becoming more curious, and then use the Thinking Routine across classes, including Maths, Science, English, Drama, and PE. Students and teachers then capture these moments of curiosity in their Learner Portfolio, an online student reflection platform created by Nord Anglia where they can add videos or photos. Students tag the evidence to the skill (curiosity) with a reflection ("I was curious when I asked a lot of questions about photosynthesis").

At the end of the six weeks, teachers ask students the same questions they got at the start of the six-week cycle, helping them to reflect on how they've become more curious.

"The bit that's important is that students are offered an opportunity to reflect on when they have tried to be curious or committed or compassionate, and then what they learned from that experience," Nord Anglia's Erricker says. "That's really the metacognitive part."

Importantly, the work is not graded. Students will not get a "B" in compassion. They simply learn more about what it takes to be compassionate, with ample opportunities to practice it, reflect on it and document it to better measure progress and growth.

NORD ANGLIA'S 'LEARNER PORTFOLIO' TECHNOLOGY

Nord Anglia's Learner Portfolio technology offers powerful information to the teacher. Maybe a student thinks they're not very curious, but the teacher sees evidence otherwise. When the child self-reports low curiosity the two can have a conversation about the gap. Why do they think they're low on curiosity? The teacher can refer the student to the Learner Portfolio and show them examples of their curiosity. The technology makes the invisible—the story the child is not telling themselves about being curious—visible, and creates opportunities for tactical and not theoretical conversations.

"The learning is the conversation the teacher has with the students, between students and their peers, and the reflections the student has," Erricker says. "The Thinking Routines provide the opportunities to try new ways of thinking that support personal growth and ultimately academic growth."

As students develop these skills, Nord Anglia's research partners will use the data—all anonymised and randomised to protect every student's privacy—to investigate cutting-edge research questions:

- How effective is Nord Anglia's programme in prompting metacognitive growth?
- Is there a relationship between metacognitive growth and student well-being and outcomes?
- Which factors contribute to the development of metacognitive skills?
- How does implementation affect the delivery?

In other words, the researchers will ask:

- Do the metacognition tools the teachers are developing through the use of Thinking Routines help kids to perform better, and feel better?
- Do they make kids happier?
- Are they growing in critical domains that many employers now say they care about?

"Self-awareness about yourself as a learner is the critical starting point to know where you are and where to go to get better," as Erricker explains.

> *"The Thinking Routines provide the opportunities to try new ways of thinking that support personal growth and ultimately academic growth."*

04

IT’S LOOKING PROMISING

THE FIRST ROUND OF OUR METACOGNITION RESEARCH IS IN.

Teachers in the 27 Nord Anglia schools piloting the metacognition project received training and tools for thinking strategies around the Learner Ambitions in September 2023. They were encouraged to play with the tools and think about how they would weave them into their curriculum. In January 2024, they rolled them out to students.

At that time, Nord Anglia’s research partners at Boston College conducted their first round of data collection, critical “baseline” research from which they will be able to chart growth over time. Teachers and students were asked key questions including how well they understood metacognition as a concept and how helpful they found it to be. As the programme is rolled out more fully, Nord Anglia and Boston College will watch how these figures change.

The baseline study was done in two waves: students and teachers. Students were surveyed from 21 February until 22 April 2024. The sample included 2,429 students in Years 3 to 9 representing 17 countries, with schools including Nord Anglia International School Hong Kong, Colegio Menor Quito, and North Broward Preparatory School.

HERE'S WHAT STUDENTS SAID:

55%

of student respondents agreed or strongly agreed that metacognition "helps me be successful outside of school".

14%

disagreed or strongly disagreed.

58%

of student respondents agreed or strongly agreed that metacognition "improves my thinking".

14%

disagreed or strongly disagreed.

When asked about changes over the past few months, students on average felt their creativity, collaboration, commitment, curiosity, compassion, and critical thinking got better or much better. For example:

78%

of student respondents said their creativity "got better" or "got much better".

73%

of student respondents said their collaboration "got better" or "got much better".

73%

of student respondents said their curiosity "got better" or "got much better".

> *Students also reported noticing more about themselves. A whopping 84% got better or much better at knowing what they are good at and 75% got better or much better at being independent. Grades and self-regulation also improved: 55% reported getting better or much better at self-regulation and 61% said their grades improved.*

There is still room for improvement. About half of students agree or strongly agree that they understand what metacognition is with about 35% of students reporting that learning about metacognition is "fun".

Students also reported noticing more about themselves. A whopping 84% got better or much better at knowing what they are good at and 75% got better or much better at being independent. Grades and self-regulation also improved: 55% reported getting better or much better at self-regulation and 61% said their grades improved.

Positive comments included statements like "When we think twice our brain can find another way to solve the problem or better ways to do it" and "Metacognition helps me to regulate myself and focus on what is important at the moment. It is a way to understand myself more deeply."

Not all kids loved it. "I would rather they just give us an interesting topic", said one student. This may reflect the reality that thinking is hard, especially compared to taking information in and then repeating it back orally or on a test.

WHAT DID NORD ANGLIA'S TEACHERS SAY?

Nord Anglia's teachers were surveyed from 25 January until 30 April 2024. Researchers garnered 389 responses and teachers hailed from a range of grades, from pre-Kindergarten through to grade 12/13, with the most participation in middle school (Years 7, 8, and 9).

87%

said metacognition helps students to be successful beyond school.

83%

said it helps to improve thinking.

84%

84% think it helps students be successful in school.

9%

agree or strongly agree that metacognition is a passing fad.

Teachers worried about not having enough time to implement the strategies, with some encountering difficulties navigating lesson delivery platforms. More training will be rolled out in response to the feedback.

04

A CLEAR PICTURE

Like many schools, Nord Anglia schools work tirelessly to design and impart curricula in rigorous and engaging ways. They examine how subjects are sequenced and layered so that students can best understand and retain information learners need to thrive.

But the world is changing fast, and students need to go beyond curriculum and be able to showcase their curiosity, creativity, collaboration, critical thinking, compassion, and commitment.

Too often in education the development of these skills is left to chance. By identifying the component pieces of these skills, figuring out how to teach them, giving kids opportunities to practice them, and measuring the growth of them, Nord Anglia will have a clear picture of how they learn best.

Earlier this year, Dr James Mannion, a former teacher and co-author of *Fear is the Mind Killer*, told INSIGHTS that metacognition "is the most important idea in education by miles, although there is some confusion about what defines it."

"I think of it as the escape hatch; it is the way you escape from your current programming and habits; notice the patterns you are in and take a different course of action." In other words, it is the ability to develop agile learners.

This is life skills gold.

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