



Optimize learning through science



BECOMING A SOPHISTICATED LEARNER

A Science of Learning Program for Students in Middle School & High School

PROGRAM CURRICULUM



Teaching students about the science of learning highlights that they may use ineffective learning methods. When students replace these with more effective evidence-based strategies, the outcome is a learner that has a better understanding of how to acquire and apply new information (Finley et, al. 2010)



THE STATUS QUO

- **Students aren't taught how to learn**

- Learning is a scientific process, and for students to learn optimally they must be taught. This is true regardless of cognitive abilities and disposition towards learning (Dunlosky, 2021).
- Students often use ineffective techniques such as highlighting and re-reading. Such strategies are rooted in the misconception about learning (Bjork, 2013). This causes too many students to drop-out, struggle, and/or work too hard to do well (Hynes, 2014).

- **College and workforce demands lifelong learning**

- Nationwide, only 21% of students met all four college-readiness benchmarks (English, Math, Reading, Science). This drops to 5% for African American students and 10% for Hispanics (ACT, 2023).
- As many as 60 percent of entering college freshmen are placed into remedial education courses to develop skills that they should have learned in high school (Center for American Progress).
- Only 1 in 7 Community College students realize their goal of graduating within 6 years (Columbia Community College Research Center).

COGx SOLUTION

Developed by COGx in collaboration with leading researchers in the Science of Learning, the *Becoming a Sophisticated Learner* program equips students with the skills needed to learn efficiently, effectively and grow into independent, lifelong learners.

Grounded in insights from 1,400+ research studies, learners master evidence-based strategies to actively process information, stay organized, and encode, retrieve, and monitor their own learning. This ensures mastery of what they're taught and provides the foundation for developing critical thinking and creativity. Structured reflection and interactive tools further strengthen communication and collaboration.

Each learner is equipped with 100+ evidence-based strategies captured in Application Guides—a personal toolkit to ensure lasting impact.



PROGRAM STRUCTURE



Includes:

7 Active Learning Modules
100+ evidence-based strategies



Duration: 15+ Hours



Implementation Model:

Blended, Facilitator Led



Learning:

Synchronous + Asynchronous



Age Groups:

3 versions available

- Middle School (Grades 6–8)
- High School (Grades 9–12)
- College & Adult Learners

MODULES



Module 0: Defining Learning Success & Science of Habits

Our introduction prepares students for success throughout the program. The focus of the module is understanding the science behind **productive habit formation**. Students review common misconceptions and studies on habit formation and predict outcomes, learning the formula for establishing habitual behaviors. Similarly, students explore the concept of **desirable difficulties** and practice methods to persevere through difficult tasks. The module concludes with students creating a “time capsule” video to capture their new understanding of habit formation and how they will apply it throughout the program.



Module 1: Unlearning

We begin by exploring students’ existing **misconceptions** about learning. It introduces basic **brain anatomy**, how **emotions** can interact with cognitive functions, and the role that **stress** can play in decreasing our cognitive capacity. Students participate in an activity and then identify the most common and essential aspects of a **satisfying learning experience**. They then share and reflect as a group on common themes such as clear objectives, immediate feedback, and a sense of belonging, purpose and trust.



Module 2: Relearning

Students identify the qualities of a good student or a successful person, followed by a mini lesson on **neuroplasticity**, highlighting the brain's malleability. They explore the impact of mindsets on learning, recognizing that it is just one element of success in learning. They learn to interpret and manage emotions. The concept of '**flow state**' is introduced, and they explore the balance between challenge and ease. They then learn about **metacognition**, establishing a baseline for self-reflection and feedback. The session concludes with **deliberate practice**, emphasizing that mastery requires effort, even for experts, and debunking the notion that success is purely due to innate talent.



Module 3: Learning for Mastery

The basic processes of memory creation are presented, starting with the **myth of familiarity** and how we often misjudge our knowledge. Then, the metaphor of **attention as a filter** is introduced, explaining how we can control which information passes through it. The mini-lessons address the limitations of **working memory** and how to overcome them when learning new information. They also explore why **long-term memory** is unlimited and evidence-based techniques for encoding information. Finally, they create their own mind map to remember key terms.

*“Deep thinking depends on what students already know and on how that knowledge is stored, activated, and applied. **Critical thinking** is not a set of generic skills that can be applied to any situation. Rather, thinking is tied to the content of thought - domain knowledge.”*

Daniel Willingham,

Cognitive Scientist & Professor of Psychology, University of Virginia



Module 4: Mastering Retrieval

The '**forgetting curve**' is introduced, explaining that, although it may seem counterintuitive, it is beneficial to allow some forgetting to occur before attempting to practice **retrieval**. Recovering information from memory is, in fact, one of the best ways to strengthen it. Students are asked to use grids to recall information from previous modules. This also illustrates other **study strategies** they can master to study effectively. Finally, they are asked to reflect on their study routines and update their methods using our guidance.



Module 5: Executive Function

Students learn about the role of **executive functions**, the “CEO” of the brain. Throughout the module, students construct an answer to the question, “How does your mind go about managing all the tasks before, during and after a goal that you have set?” Students discover that their 'internal CEO' carries out various skills, such as **planning, organizing, controlling attention, and reflecting on performance**. They experience a mini lesson on writing **effective goals** that are short-term, specific, and moderately challenging. To apply the content, they analyze the **time management and planning** of a fictional peer in their final project, reviewing her agenda and providing constructive feedback.

“Not only can we put cognitive science discoveries into practice, but I believe we're ethically obligated to do so; the benefits are so profound that inaction at this point would be tantamount to malpractice.”

Sanjay Sarma

Professor MIT, founder MIT Open, Author of Grasp



Module 6: Metacognition

This module builds on Module 5 to discuss executive functioning behaviors needed to sustain **attention**, reduce distraction and **impulsivity** and **manage frustrations**. Students apply these skills to supporting their fictional peer to help her stay on task and submit her senior project on time. The module concludes with a discussion of why **mistakes** are essential for learning and how to benefit from **feedback** and even **failure** and use it effectively for improvement. In this way, **metacognitive skills** are developed in these last two modules.

I learned many things, but the most important lesson for which I am particularly grateful for are the COGx lessons. The COGx lessons were related to teaching how learning works, which really helped me with my studies and implementing the techniques I learned during these lessons dramatically improved my performance.

Saba Mohammed,

British International School, Ukraine



“

If this program were integrated into the school system, and teachers and students knew the techniques and strategies we learned, everyone would be a lot smarter!

Kevin Hatchett,
Student, Walt Whitman High School,
Bethesda, MD

GLOBALLY RECOGNIZED

COGx was recognized as the leading Science of Learning solution globally, emerging as a standout choice, among 1100+ organizations, impressing a panel of 650+ judges. COGx was also recognized as the Top EdTech innovator (USA) to advance learning success in higher ed at the LatinX Conference. The Dubai Future Foundation recognized COGx as the one of the world's Leading EdTech Innovators.



The ultimate goal of education is to cultivate learners who can monitor, regulate, and direct their own learning for the rest of their lives.
(Bransford, 2000)



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PROGRAM DESIGN



HOW IT WORKS

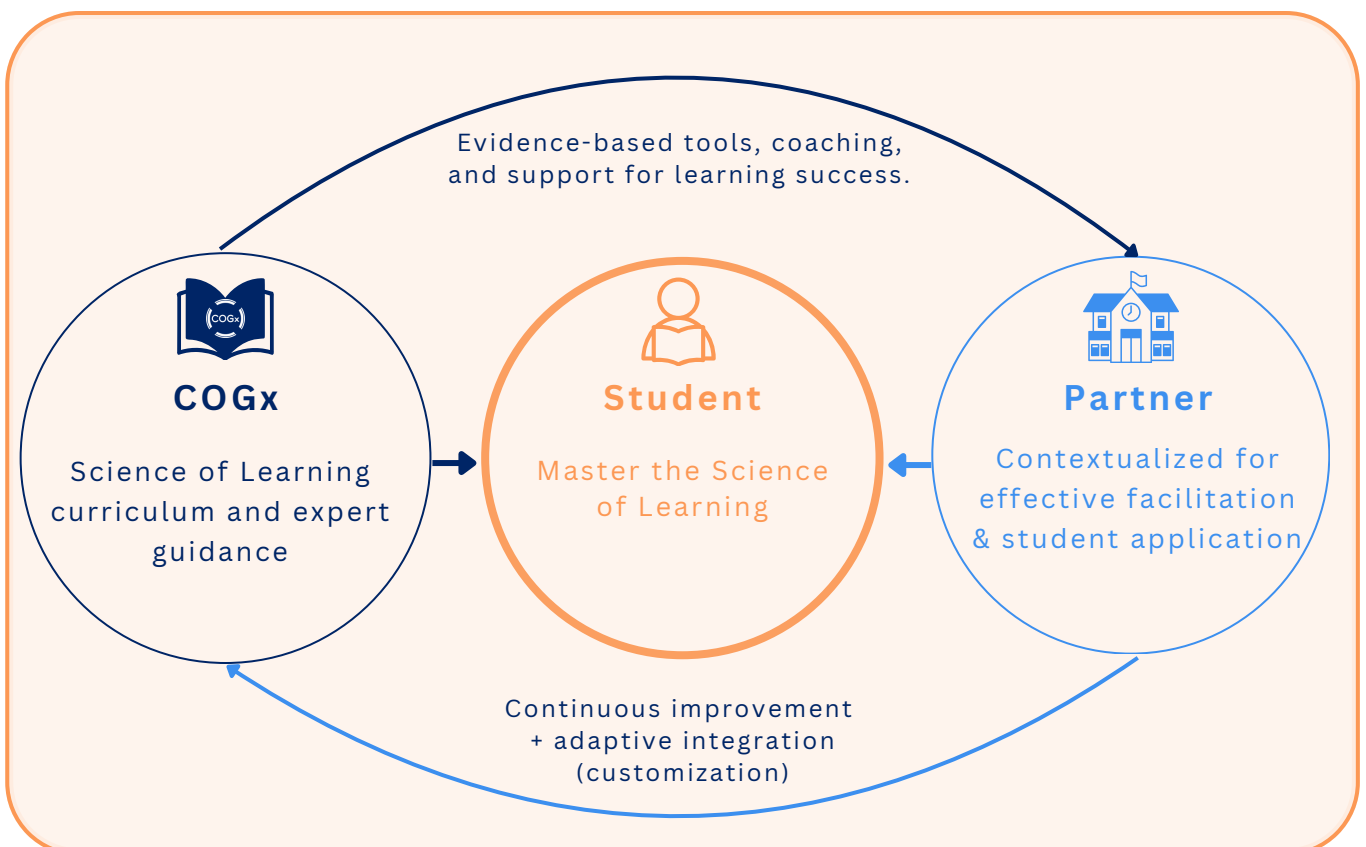
Blended Learning Model

Optimizing Learning Outcomes with Blended, Facilitator-Led Program

The ideal implementation of *Becoming a Sophisticated Learner* adheres to a blended, facilitator-led model of instruction that ensures students master the Science of Learning. In this model, students have the opportunity to work through our online program independently, in partnerships, in small groups, and as a whole class. With COGx training and support, designated educator/s, called facilitators, from the organization adopting the COGx Student Program, act as guides leading the students through the program. As a result, students are set up to be successful, engaged, and motivated throughout, and graduate as effective and efficient learners.

Our Shared Purpose

COGx addresses the core issue of ineffective learning strategies rooted in misconceptions about how learning works.



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HOW STUDENTS LEARN

Role of the Facilitator

COGx supports a facilitator to lead the programs within the partner organization. In the blended experience students engage with the online platform and also participate in live sessions with their facilitator. These live sessions should allow students to connect the content to their current coursework, explore topics more deeply, and practice the skills they are learning, making the program both relevant and practical. **Facilitator responsibilities encompass four core areas:**



Guide Progress

Support and engage students as they progress together through the online modules, ensuring an impactful learning journey.



Develop Blended Sessions

Work with a COGx Learning and Development Manager to design live sessions that reinforce online content and deepen understanding.



Lead Sessions

Host regular (minimum one per module, ideally twice) facilitator-led sessions that make learning engaging, relevant, and directly connected to real-world applications.



Communicate Progress

Share insights on student achievements and communicate any obstacles to foster continuous improvement and personalized support.



INSTRUCTIONAL DESIGN

The instructional design of the program adheres to the scientific principles of human learning. We incorporated methodologies that support mastery of content and transfer of skills. As such, the majority of the course is active learning. Each module presents an engaging learning experience through which students are learning-by-doing, through storytelling, and collaboration. Students demonstrate their learning to authentic audiences of their peers and beyond.



Storytelling: Students learn from other people's stories and share their own experiences.



Priming activities: prepare the students' brains for learning and make it easier to recall the material later on.



Retrieval Practice: Students engage in frequent retrieval practice including elaboration, spacing, self- testing, and interleaving.



Creative Expression: Students engage their creative side while writing and making videos.



Collaboration: Students give and receive structured feedback to their peers



Reflection: Students make meaning of what they're learning and understand themselves as a learner through reflection.



Video Micro-Lessons: Students watch video micro- lessons to make the information come alive.



Application Guides: Students can print out these study guides or store them on their computer for easy reference.



Authentic Assessment: Students demonstrate their learning to authentic audiences of their peers and beyond.