



"Max" – age 9

Program Hours: 90

Program Goals: *Improve shifting; improve ability to visualize; improve Max's attention and processing; improve Max's ability and attitude towards learning new and difficult things*

Over the course of his program, Max improved on each of his program goals. In the beginning, Max would focus on his mistakes and refuse to complete tasks due to frustration. However, Max thrived on encouragement and positive feedback. Once trust was established, Max was open to trying new tasks and harder "levels" on exercises.

The skills that were most emphasized during Max's training were his attention, ability to follow directions, working memory, and processing speed, as well as shifting and confidence. The metronome became the focus of a majority of the exercises we did in order to help improve his attention and processing speed. In the beginning, he was physically and verbally apprehensive and argumentative when he had to follow the metronome. With effort, Max made tremendous improvements towards his attention and processing speed and he is better able to regulate his attention and thinking when completing a task.

We included certain exercises to target Max's ability to follow directions. At the start of training, he wanted to do tasks the way he saw fit or would suggest alternative ways to complete the task. He improved by being able to follow more than 3 step directions at once. These exercises were also used to enhance his working memory, as he had to remember the directions in order to complete the task.

Another major focus of Max's training was attention. In the beginning, it was difficult to get him to focus for more than one part of one exercise, but by the end of training, he had the ability to remain focused for the entire session. Max's self-awareness also increased as a result of his training. Instead of physically walking away, he would take a few deep breaths before attempting the task at hand. Max's confidence also increased. Towards the end of training, we went back to "easy" levels on most of the exercises; by doing this, he was able to see how far he had come and had more understanding that he can complete a task successfully if he builds up with each step. It even appeared that the "easy" levels were now boring to Max and he would no longer dwell if he made a mistake.

Regarding memory techniques, Max was resistant to feedback and as a result he was not able to dependably recall. Towards the end of training, however, Max was becoming more open to suggestions and started creating stronger connections. At the end of his program, Max stated that what he was proudest of was improving his memory.



"Annabel" – age 8
Program Hours: 60

Program Goals: Improve processing speed and attentiveness

One of Annabel's goals was to improve her attentiveness through COGx training. This was probably the most challenging task for her. In order to increase her attentiveness, she was encouraged to use her creativity which completing seemingly mundane tasks. Initially, the goal was to get Annabel to complete tasks completely without daydreaming during the task. Once she was able to do this, we then focused on speeding up the pace at which she completed these tasks. Annabel did not need to focus on accuracy because part of the reason her processing speed was slower in the first place was due to her need to complete tasks perfectly.

Another strategy used to help Annabel with her attentiveness and processing speed was by having her complete tasks with the metronome. Regulating the speed at which she completed different activities helped her stay on task while completing the activity efficiently. She would initially complete tasks at a slower pace with the metronome while slowly increasing the tempo of the metronome to increase her processing speed.

Annabel was able to implement memory strategies, which will carry over to her studies as well. This includes linking, visualization, and chunking. These tools were some of Annabel's favorites and she used them to not only remember information but also to focus while she was given instructions.

I like making up stories, which is why I like linking. Even though training is hard and it makes me tired, my memory is better now. I can also think faster! – Student



“Cara” – age 10

Program Hours: 70

Program Goals: *improve the automatic processing skills underlying Sarah’s ability to learn optimally and independently, namely weaknesses in processing speed and attention; improve ability to organize and order thoughts/ideas.*

At the start of her program, Cara was apprehensive and struggled with fear of failure. However, this soon diminished as an alliance an alliance was built and Cara revealed a great internal motivation to learn.

Some of Cara’s difficulties did not make themselves fully apparent right away. As Cara became more comfortable, she began to push back on certain tasks, which was helpful and revealing because this points directly to specific challenges underlying the tasks. Similarly, Cara often tried to jump ahead in tasks, and this was consistent with her learning in the classroom. While raising Cara’s processing speed was a program goal, it became apparent Cara’s impulsivity needed to be addressed first to resolve her tendency to become lost and have to start over. Sarah was instructed to complete meticulous tasks with a focus on accuracy. These tasks were often rather frustrating for her, as she often sought to prove her own intelligence by trying to do everything as fast as possible.

In terms of executive functioning, Cara struggled with planning, organizing, and monitoring her thought process. We targeted this with an exercise that Cara struggled greatly with at first because of the challenge it represented, but in time this exercise became her favorite as she internalized the great improvements she had made. Cara soon recognized her own improved ability to think before she spoke and to be more observant.

As she grew more accustomed to working carefully, I introduced Cara to visualization techniques in order to improve her recall and help organize her thought process. Naturally creative and a visual learner, she picked up on it quickly and I was able to use it to support her when working carefully. As she grew more confident at making strong connections, time was targeted to make Cara work more efficiently.

In order to transfer these gains, Cara learned how to use this skill to create pictures to support her recall when studying information. This began with material provided in the session and ultimately Cara identified on her own that she was able to apply these techniques to things like learning new vocabulary words, poems, and other topics she was required to learn.

In the final weeks of her program, Cara was able to masterfully identify how and when to apply the variety of techniques covered in her program. By the end of her program, Sarah’s greatest achievement was how sophisticated her learning process had become, which was apparent in her ability to work independently in identifying how to study, when to study, and when she could move on confidently having learned and understood new material.



“Casey” – age 16

Program Hours: 70

Program Goals: Improve confidence and slow work (processing speed)

Casey was described by parents and teachers as having extremely low self-confidence and slow work. Casey’s goal entering into COGx was improved processing speed along with improved confidence. These issues were interrelated. Casey was keenly aware that he has an issue with processing speed, which impacts his confidence. His low self-confidence, in turn, seems to feed back into his already somewhat slowed processing, forcing him to constantly second-guess himself and slowing him down even more.

Work on processing speed began with a variety of exercises designed to constrain the time Casey had available to take actions and make decisions. These included visual and auditory processing exercises and targeted domains such as math, mental manipulation, and response selection. At first, Casey was often extremely frustrated when, by his own estimate, he had failed to live up to trainer expectations. He was doing absolutely fine, but his high standards for himself combined with his low self-confidence left him crippled.

Soon, however, Casey began to trust that when his trainer told him he was doing well, he was. This honest feedback was able to break through the negative feedback loop, convincing Casey that his performance was often excellent. He was able to build on these successes, stringing them together impressively. Some of his best moments involved memory techniques. He learned several, but his most successful was the memory palace. Using this technique, he learned the Preamble to the US Constitution, the poem “Litany Against Fear” from Frank Herbert’s *Dune*, and the Miranda Rights. Casey proved to be particularly skilled at this technique, developing vivid scenes in his imagination that allowed him to greatly expand his storage limit. More importantly, he realized that he was good at this. Casey’s success with the memory palace led to further successes in other, previously weaker areas, particularly in processing speed. He came to realize that it was okay to guess sometimes, and to not be 100% sure of an answer when giving it. His steadfast commitment to the program was a huge asset in the successes he has had with his COGx program.

Casey is showing more of a willingness to speak up, even when he is less than 100% positive of his answer. His attitude towards himself and his learning is improved. – Parents