



“Eric” – age 10

Program Hours: 74

Program Goals: *Improve long-term memory through the drilling, teaching, and transferring of memory techniques and strategies; improve metacognition as this pertains to his ability to improve in and apply these techniques and strategies; improve an underlying weakness in processing skills (namely processing speed and working memory) along with his ability to organize and articulate ideas and concepts.*

Eric was an eager learner who was consistently willing to challenge himself and try new tasks. He was always kind and positive throughout the program sessions. Eric made great progress throughout his training, and his positivity and perseverance through difficult tasks was beneficial to his success.

When Eric began COGx, the goals involved increasing long-term memory, working memory, and processing speed. His training began by introducing a number of activities at the beginning of training to target his short and long term including visualization, association making, and linking. Eric used these skills to remember information including a number peg system to remember days, months, and years, as well as specific pieces of information to colored blocks and mnemonics. As Eric gradually grasped these concepts, he used the techniques to remember state capitals, historical dates, and eventually vocabulary terms from class. After these skills were targeted, we introduced the method of loci technique. He used this technique to learn the Bill of Rights, the Articles of the Constitution, and the elements on the periodic table. At the beginning of training, Eric required a great deal of prompting to execute these tasks, but by the end of training he was able to individually and quickly apply these memory techniques.

Eric’s training also targeted processing speed and working memory. At the beginning of training, the metronome was a great challenge, and we were unable to add the metronome to many tasks due to difficulty. Eric’s speed constantly improved and he was able to complete activities at faster speeds on the metronome, perform more challenging prompts, and complete tasks within a shorter time. These tasks were beneficial in not only increasing Eric’s speed, but also his concentration and cognitive flexibility.

Eric greatly increased his working memory during our time together and he was able to remember more information in a shorter amount of time. At the beginning of training, he often used modifications for tasks. He was gradually able to wean off these aids so the activities were more tasking on working memory and cognitive flexibility. Eric’s metacognition improved during training, and his ability to accurately rate his performance improved. The program also included tasks that required Eric to articulate information, describe pictures, or demonstrate specific phrases. Eric’s accuracy and flexibility gradually improved with these tasks as well.

Towards the end of sessions, Eric incorporated schoolwork primarily through the use of vocabulary terms and worksheets. He utilized his school worksheets to discuss finding text evidence, point of view, and describe the information he read, as well as using associations to learn his weekly vocabulary terms. By the end of our sessions, Eric’s ability to quickly and individually use visualization techniques improved greatly. Eric was continually eager to add more information to his memory techniques, capitols, and historical dates. Eric’s eagerness to learn and positivity was beneficial to his growth and success throughout the program.



“Sarah” – age 13

Program Hours: 90

Program Goals: *Improve an underlying weakness in processing skills (namely attention, processing speed and working memory); Improve long-term memory through the drilling, teaching, and transferring of memory techniques and strategies; improve metacognition as this pertains to his ability to improve in and apply these techniques and strategies; Improve Executive Functioning*

Sarah was a creative and eager learner, and she was very kind throughout every session. Her positive attitude was a great strength throughout the program, as was her increased maturity and willingness to try new and more difficult activities.

When Sarah began COGx, the goals involved increasing working memory, processing speed, and overall executive functioning. Her trainer introduced a variety of activities to target retrieval skills for both long and short-term memory. We utilized linking and association skills to strengthen Sarah’s visualization and retrieval skills. She utilized linking to remember numerous places and objects, as well as specific days and eventually months and years. Sarah gradually understood these concepts and we were able to add more and more information. These techniques were used later to help Sarah remember state capitols, historical dates, and eventually information from her schoolwork.

Sarah’s working memory consistently improved throughout the program, and she was able to remember more information in a short amount of time. At the beginning of sessions, Sarah struggled to remember a set of instructions or rules during tasks. By the end of training, she was able to perform these same tasks with more challenging prompts. A similar trend was observed on tasks that required Sarah utilize cognitive switching. Sarah was able to perform tasks involving cognitive switching with minimal errors and at a faster pace with the metronome at the end of training. Sarah’s processing speed noticeably improved and she was able to complete activities at a quicker speed on the metronome and complete tasks within a quicker time.

At the beginning of training, Sarah often internalized her anxiety and lacked awareness to her errors during tasks. Her trainer implemented assessments to bring awareness to Sarah’s strengths and weakness and overall improve her metacognition. Sarah maturity and confidence improved dramatically over the course of training, and she appeared to internalize her anxiety less and approach challenges with more ease.

During the last few weeks of training, Sarah began generalizing what she had learned by applying association and visualization techniques with her classroom materials. We also discussed mnemonics in detail and applied this technique to remember items from her classes. Sarah’s improved confidence, increased maturity, and decreased anxiety were noticeable, and she was excited to try new or more challenging prompts throughout training.

My wife and I are so happy with Sarah’s progress and we are so proud of her. Her teachers see it, and most importantly so does Sarah. She is so much more capable and confident now with her improved memory, and she is more motivated to work through difficulty. – Parent



"Benjamin" – age 16

Program Hours: 70

Program Goals: Improve processing speed; ability to problem solve; initiate and complete tasks; improve recall.

Benjamin's main goal with COGx was to improve his processing speed, in order to help him complete assignments faster. We dove into this from the outset of his program, focusing on exercises that are timed with a stopwatch or paced with a metronome, both of which demand, in their own ways, a strict adherence to a preset speed. At first, Benjamin often struggled with this, impeded by his desire to get everything absolutely correct, and his frustration at his inability to do that. Over time, though, Benjamin learned to first sacrifice some accuracy for improved speed, and later to build accuracy back up to previous levels. This cycle was repeated (alternatingly building accuracy and speed) for several iterations, until Benjamin had reached high performance criteria in a variety of tasks in both math-related and verbal domains. Complexity was added over time, to address Benjamin's goal of improved problem solving.

Through all this work, it was critical to vary Benjamin's assigned tasks as much as possible, to minimize the risk of "practice effects" — improved performance on a certain exercise that is not necessarily reflective of a more generalized boost to the underlying cognitive skill. By training processing speed in a wide variety of contexts, Benjamin was able to improve the ability to quickly process information, and will be able to apply this improved skill. In one applied example, a writing exercise we occasionally used forced him to very quickly generate and expand upon ideas to respond to a particular task, an improvement he will carry forward with him.

In working on his processing speed issues, it came out that Benjamin struggles sometimes with long-term associative memory. In particular, he was often unable to remember pairs or groups of items that were not clearly conceptually linked. Benjamin found the *linking* memory technique useful only when he could verbally explain his links. He was encouraged to rely increasingly on his visualization ability by limiting his verbal response first to just one word, and then to nothing at all. This allowed Benjamin to acquire the skill in a manner suited to his talents. By the end of the program, Benjamin had acquired several useful memory skills, and the ability to deploy them quickly.

Note taking has gotten better. I'm more organized and quicker. I can process information that comes in auditory and visually better than before. My enhanced memory is something I've used a lot for my German class. I used to be a B or B+ and this moved to an A. I was able to use the memory palace technique to my law class as well. – Student

Processing speed had been the most challenging issue for him going back, and with college placement we were concerned about this being an issue. I have seen my son improve in memory and processing speed. He used to struggle more on the math component. – Parent



“Jahan” – age 15

Program Hours: 80

Program Goals: Improve processing, primarily auditory processing skills, impulsivity, and working memory; improve long-term memory through the teaching and transferring of techniques and strategies

Jahan brought great energy and creativity to his sessions. The focus of his program was to address processing (auditory process was the primary weakness reported along with working memory and impulsivity issues) and long-term memory.

Jahan’s auditory processing skills improved immensely by using visualization. At first, Jahan could not complete the basic levels in exercises targeting this skill, but over the course of his program he improved to be able to perform the highest levels perfectly. This is noteworthy because it involved completing tasks with 6-step instructions. Jahan even asked me if we could go to a higher level, and one was customized accordingly.

Jahan’s working memory and long-term memory were improved by implementing the techniques of linking and making associations. His impulse control has improved significantly. At first, Jahan was challenged by completing tasks at paces below his comfort zone. When we went to a slower pace, it was difficult for him to stay focused and he engaged in avoidance tactics. By the end of his program, he was able to complete these tasks accurately and without frustration. It was very important for Jahan to accomplish these exercises so that he understands the value of sustaining effort on tasks and the reward it generates.

In learning to apply memory techniques, Jahan learned that he is able to better remember information when he groups the information in a meaningful way and then links those groups together. He also learned how to apply mnemonics and successfully applied them to schoolwork in order to help him remember the prefixes of the SI units (Tera, Giga, Mega, Kilo, Hecto, Deca, base, deci, centi, milli, micro, nano, and pico). He can also took quickly to mind mapping, which was a great strategy for Jahan because he’s a visual and kinesthetic learner.

It was very important for Jahan to be able learn these skills one-on-one so that he could overcome insecurities about employing strategies. Teachers and parents were also provided material on these techniques and informed of Jahan’s insecurity in applying them due to his perception that they indicate a weakness. This allowed teachers to prompt Jahan for “tips” and set him up in an empowering way rather than causing negative attention by only mentioning strategies under negative circumstances. This helped Jahan develop a more positive attitude towards his learning style.

I am already using these techniques in my schoolwork and these techniques have really helped me. I understand which techniques are best to use for different types of information. – Student