

## **Captain's Log**

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### **The complete Computerized Mental Gym**

Research has shown that just as physical fitness requires regular physical exercise, mental “fitness” can come about through daily mental workouts. Regular use of cognitive training programs, which address particular skills such as attention, listening skills, memory etc., stimulates the areas of the brain that are responsible for these mental functions and helps activate them to bring about lasting change. Using the Personal Trainer, we can create a customized training plan. We incorporate the exercises into your cognitive, behavioral therapy to shape behavior, heighten self-esteem, enhance self-control, and improve processing speed.

Essential to any individual’s ability to learn and process general, social and academic information is the Primary Information Processing System (PIPS). PIPS reflect an individual’s capability to accurately and efficiently identify, discriminate and process relevant ongoing information in his/her environment. It is dependent on working memory and central processing speed capabilities. All of the exercises in the BrainTrain system help to enhance this critically important information processing system. Each of BrainTrain’s training exercises has a beginning or starting stage. Generally, it is best to begin with the first stage. The beginning stages often have important information about the basic rules for the specific exercise. Also, passing these beginning stages can help build confidence. The stages are arranged in hierarchical order in terms of difficulty and increasing training time.

In the Captain’s Log programs there are three tracks: Silver, Gold, and Diamond. Each track consists of 15 stages (except that 30 stages are available in the Maze Learning Program). The Silver track is for children up through age 11. The Gold track is for ages 12 to 16. Ages 17 and above start with the Diamond track. Depending on the training options set any stage can become very challenging, even the beginner ones. Increasing the level of difficulty often means that new concepts are introduced, more images are presented, training stimuli are more complex, training time is longer and a faster training pace is required.

There are currently 35 training exercises available in the Captain’s Log System for Windows. The 6 modules currently released include: Attention Skills: Developmental, Visual Motor Skills, Conceptual Memory Skills, Numeric Concepts with Memory Skills, Attention Skills: The Next Generation, and Logic Skills. Each of these exercises has been given a “game” name to add a sense of fun to the training.

Unlike video games, the exercises are carefully organized and systematized to train specific cognitive skills and meta-concepts. Since the primary goal is not entertainment, it may be necessary at times to keep children motivated and goal-oriented by using external rewards such as social praise, tokens, stickers, prizes and/or play money. It also needs to be remembered that mastering boredom and learning to sustain attention when necessary to a repetitive task with a high degree of accuracy is one of the global goals of this cognitive training system.

The exercises provide feedback in terms of money, points, or grade percents. This feedback is displayed continuously at the bottom of the screen. For most programs faster responses will result in increased scores. The point system is weighted so that almost all players will have positive scores. Players must pass a stage in order to be allowed to keep their rewards.

Spurious, random, off-task, careless or impulsive responding is negatively reinforced. Individuals who are inattentive, hyperactive and/or impulsive frequently make these types of responses. Depending on the specific program and difficulty level set, a specific number of these types of responses are allowed. When the number of what are called “response” errors” or “tracking errors” are exceeded, then play is halted and an appropriate error message is presented. For some programs the patience option can also be selected to further reinforce appropriate, on-task responding. This option increases the program’s sensitivity to response errors and inappropriate clicking or moving of the input device. BrainTrain’s Cognitive Training System requires players to make careful choices, pay attention to cues and wait until it is appropriate to respond in order to win.

### **Cognitive Skills Trained**

Over 22 different types of cognitive skills can be trained using the Captain’s Log System. The following list is comprehensive, though not all-inclusive.

1. ***Alternating Attention:*** The ability to shift the focus of attention quickly back and forth between two different sets of stimuli in the same sensory modality and respond appropriately.
2. ***Auditory Processing Speed:*** The time it takes to perceive relevant auditory stimuli, encode and interpret it and then make an appropriate response.
3. ***Central Processing Speed:*** The time it takes to encode, categorize, and understand the meaning of any sensory stimuli, which is the focus of attention.
4. ***Conceptual Reasoning:*** The cognitive skills which include **concept formation** (the ability to analyze relationships between objects), **abstraction** (the ability to think symbolically), **deductive logic** (the application of general rules or concepts in making a design for a specific set of stimuli), and/or **inductive logic** (the analysis of feedback or identification of relevant details in formulating a concept to use in decision making).

5. ***Delayed Recall:*** The ability to remember via recognition or recall numbers, letters, symbols, words, sentences, stories, visual sequences or images after performing mental exercises, which may interfere or compete with the specific information presented.
6. ***Detailed Reading:*** The ability to read, understand and implement detailed instructions correctly. Once an individual has mastered basic reading skills, and then this skill can be trained by requiring the player to read the exercise instruction screens without the text being spoken.
7. ***Divided Attention:*** The capability to attend to, process and respond appropriately to two or more different types of sensory stimuli (typically visual and auditory), which occur simultaneously or in close temporal proximity in the environment.
8. ***Fine Motor Control:*** The ability to accurately control fine motor movements and avoid making erroneous responses.
9. ***Fine Motor Speed:*** The time it takes to perform a simple motoric response independent of central processing speed.
10. ***Focused Attention:*** The ability to recognize and respond to specific relevant stimuli.
11. ***General Attention:*** The ability to focus, sustain and selectively attend to relevant stimuli and make correct responses (a combination of Focused, Sustained, and Selective attention as defined elsewhere in this list).
12. ***Immediate Memory:*** The ability to recognize or recall numbers, letters, symbols, words, sentences, stories, visual sequences or images immediately.
13. ***Response Inhibition:*** The capability of understanding and holding in working memory a rule, which defines a correct response and using this rule to help avoid automatically reacting to an incorrect stimuli.
14. ***Selective Attention:*** The capacity to continue making a correct response during a task when competing or distracting stimuli are present.
15. ***Sustained Attention:*** The capability of maintaining consistent and accurate responses during a continuous and repetitive activity.
16. ***Visuospatial Classification:*** The ability to accurately discriminate relevant features, count and group features based on a concept or rule.
17. ***Visuospatial Sequencing:*** The ability to discriminate and discern the sequential or relational order of visual objects accurately based on a concept or rule.

- 18. Visual Perception:** The ability to accurately discriminate and respond appropriately to specific visual objects.
- 19. Visual Processing Speed:** The time it takes to perceive relevant visual stimuli, encode and interpret it and then make an appropriate response.
- 20. Visual Scanning:** The ability to accurately discriminate and respond appropriately to visual objects that appear without a cue and randomly over time within the field of vision.
- 21. Visual Tracking:** The ability to follow a continuous visual cue, accurately discriminate and respond appropriately to visual objects that move continuously within the field of vision.
- 22. Working Memory:** The ability to encode and “hold” perceptual information while processing it and the capability to recall and apply relevant procedural rules in order to accurately respond.

### **Department of Education to fund computerized attention training study in schools**

Dr. David Rabiner, Senior Research Scholar at the Duke University of Psychology has been awarded a three-year, 1.15 million dollar grant to study the effectiveness of computerized attention training with elementary school children who have attention problems. Dr. Rabiner will compare the results of attention training using the Captain’s Log System with curriculum based computer-assisted instruction. This Department of Education grant is the largest grant ever awarded for cognitive training research.

Dr. Rabiner’s study is based on previous research, which showed that students with attention problems are 500% more likely to be performing below grade level in reading, math, and written language. Other research has also shown that the effectiveness of one-on-one tutoring in helping children learn to read appears to diminish progressively as attention problems increase. Dr. Rabiner found that in children diagnosed with ADHD, tutoring appears to have no effect on reading achievement.

The usual interventions for children who are diagnosed with ADHD are stimulant medication treatment and behavioral interventions. Neither of these solutions has yet been shown to result in long-term gains in academic achievement. Behavioral interventions are difficult to implement in the school setting because of time constraints and additional demands on classroom teachers.

*Taken from the BrainTrain Bugle Page 2 of BrainTrain Newsletter/Catalogue*

"During the 2003-2004 school year, we had 30 students complete the Captain's Log Cognitive Training program...23 of them showed a decline of at least 1/2 standard deviation on the attention problems scale of the Conners' Rating Scale...The academic performance of these students has shown evidence of improvement as well.

We have found that the Captain's Log program is easy to implement in our schools and that most students enjoy participating in the program."

*Kathryn A. Gewont, Ed.S., School Psychologist  
Lake Region Special Education, Devils Lake, ND*

"Both adults and children who have used the Captain's Log in our district are very impressed with the format and design of the program and find that it is easy to use. That is definitely a bonus for New York State teachers, where so much is demanded. The children have worked hard to be successful and feel very challenged by the activities. Anything that motivates our children is golden."

*Patricia Markus, M.Ed.  
Special Education Consultant  
Rochester City School District, Rochester,  
NY*

"My child first started seeing Dr. S about 2 years ago when he was first diagnosed with ADHD. We discontinued because he was doing well in the second grade. Then within three weeks of starting the third grade, his third grade teacher approached his second grade teacher and us, and asked why he was passed to the third grade, because there was no way he could pass it.

"On his first 9-weeks report card, he made mostly Cs, Ds, and Fs, and in his parent teacher conference, the teacher said his behavior was unsatisfactory.

"About this time, we started working with him on the BrainTrain software - Captain's Log, SoundSmart, and SmartDriver - every night for 30 minutes. On his second 9-weeks report card, he made almost all A's and B's, plus he won an award for excellent conduct. The teacher couldn't believe it!

"When Dr. S first spoke with my wife and me about the software, I didn't feel that computer games would help my son in any way whatsoever. He already had a lot of video games at home. My wife insisted so I agreed to give it a try.

"I would recommend these programs for the educational needs of any child. The important thing is to be sure the child works every day consistently and to be there for him."

*Roger, a parent*

"My son, Robert, was originally diagnosed as mildly autistic by a developmental pediatrician at Children's Hospital. When my son was 4 years old, Dr. Sandford developed a treatment program using SoundSmart, Captain's Log and SmartDriver.

He met with Robert weekly and I tried the techniques at home on a regular basis for about 6 months. Both my husband and I saw a dramatic improvement in behavior.

"Recently, my son's school tested his IQ (he is 6 years old now) and his score was 98—Average! My son has been transformed. Working with these computer programs has given Robert better confidence and improved focus on his work. His teachers are very pleased with his progress, and he is now one of the best readers in his kindergarten class.

"Although my son takes medication, the cognitive training exercises definitely improved his memory and this helped lead to his improvement with reading. Originally, the doctors stated that my son would require special living arrangements as an adult or would need to live with us forever. No one had any idea that cognitive training would help change Robert's life so miraculously."

*Deborah, a parent*

"I've been practicing BrainTrain's Mental Power Gym for about six months now and have seen incredible improvements in my memory. I used to have a hard time remembering the conversations that I had earlier in the day, but now I can recall them weeks later. Also, my grades in school have improved by at least a full grade letter. "

*"Socially Improved" (ADHD High School Student)*

"My daughter is a sophomore in high school who just brought home the best report card we have seen in a long time. She has spent over forty hours diligently working with BrainTrain's Mental Power Gym System this year, and we are seeing very positive results in many areas. Her grades steadily improved as she became able to tune out things, which distracted her in the past. She is much more focused on her studies and completes them more accurately and thoroughly in shorter periods of time. She seems to remember more information for longer periods, does not procrastinate the way she used to, and does not get frustrated as easily. She is more relaxed and is enjoying school, despite the difficult course load this year. She has a newfound confidence and pride which has helped her social life blossom.

"I would highly recommend BrainTrain's Mental Power Gym System to parents who are searching for a way to help their children achieve greater success in school, socially, and in their future. The more effort the child puts into working with the system, the greater their success will be."

*Jean S.  
A Very Proud Mother*

*The above excerpts were taken from the BrainTrain website.*