Overview of the MindPower Builder

You can use the MindPower Builder to improve an individual's mental abilities in a wide variety of areas. The underlying training premise is that "practice makes perfect." The exercises may be conceptualized as a computerized "mental gym" providing a full range of mental "exercise equipment." The exercises are designed to develop, improve and remediate attention, concentration, memory, hand-eye coordination, fundamental numerical concepts and basic problem solving/reasoning skills - cognitive skills which clinical research has shown can be enhanced through exercise and practice. Research has found that the brain is the "ultimate use it or lose it machine." The exercises are designed to help improve the functioning of individuals with ADHD, ADD, learning disabilities, brain injuries, developmental delays, mental retardation and psychiatric disorders. The programs, which are enjoyable but not childish, range from very simple exercises to tasks which will challenge the attention of a normal adult. They are appropriate for ages 6 to adult, and with one-to-one "coaching" can be used with children as young as four years old.

Clinical experience has shown that a minimum of two hours per week is needed to make progress with this training system. More training time is better and the training can be done intensely up to two hours per day. Any generalization of results or benefits is not expected until at least twenty hours of training have been completed. In school settings this cognitive training can be broken up into a half-hour training period provided every day. If you wish, training can be broken up into two or three 15-minute segments per day. For some individuals, two half-hour training periods per day may be necessary to make sufficient progress. Very brief training, such as one half hour a week will in all likelihood do nothing to enhance a person's cognitive skills.

Essential to any individual's ability to learn and process general, social and academic information is the Primary Information Processing System (PIPS). PIPS reflects 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 system are designed to help enhance this critically important information processing system. By working systematically on deficit areas that impair aspects of information processing, individuals can potentially improve their memory and overall ability to learn and retain new information and concepts important to academic success and psychosocial functioning.

Each of the training exercises has a beginning or starting stage. Generally, it is best to begin with the first stage. Although it is possible in the different programs to start or to skip to a more advanced stage, this is not recommended. The beginning stages often have important information about the basic rules for the specific exercise. Also, passing these beginning stages can help build confidence. In cases where the cognitive exercise is perceived by the player as easy, he or she can be challenged to make a perfect score. Even with the easier exercises a score of 100% may prove difficult to achieve.

The stages are arranged in hierarchical order in terms of difficulty and increasing training time. Based on the age of the player, adjustments regarding the starting stage or difficulty level are automatically made depending on the program. In the MindPower 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. The first 5 stages in each track are conceptualized as being a beginner level of difficulty. Stages 6 through 10 are set at the intermediate level of difficulty and stages 11-15 are considered advanced. However, 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 50 training exercises available in the MindPower System. These are divided into nine modules: Attention Skills: Developmental, Visual Motor Skills, Conceptual Memory Skills, Numeric Concepts with Memory Skills, Attention Skills: The Next Generation, Logic Skills, Working Memory Skills, Auditory Working Memory Skills, and Real Life Working Memory Skills. Each of the exercises has been given a "game" name to add a sense of fun to the training. Some of these programs, particularly in the Visual/Motor Skills module, are very game-like. Other programs have a game-like format, but the basic task is fairly simple. 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. However, for some children a "break" on the computer playing these cognitive exercises is inherently rewarding by itself. It also needs to be remembered that mastering boredom and learning to sustain attention to a repetitive task, while maintaining a high degree of accuracy is one of the global goals of this cognitive training system.

The exercises can provide feedback in terms of money, points, or grade percent; older children, adolescents, and adults will be rewarded by simply making the necessary "grade" to move up to the next stage. This feedback is displayed continuously at the bottom of the screen. For most programs faster responses will result in higher scores. The point system is weighted so that players will have positive scores; negative scores are not possible (i.e., the lowest score is zero). In some of the programs, both incorrect responses and failure to respond to the training stimuli are defined as incorrect choices. The player must pass the stage in order to be allowed to keep his rewards. In other words, if the stage criterion for passing is not met, the player loses all of the money or points he or she has earned.

The mean grade for each trainee and the cumulative percent of exercises passed are automatically recorded and visible. Scores are saved and can be printed. A grade book can be used to record relevant scores for each person and a grade average calculated for that day, week or month. If a spreadsheet program is available on the training computer, it could be used for this purpose.

Spurious, random, off-task, careless or impulsive responding are negatively reinforced. These types of responses are frequently made by individuals who are inattentive, hyperactive and/or impulsive. Depending on the specific program and difficulty level set, a certain number of these types of responses are allowed. When the set number of what is called “response errors” or “tracking errors” is exceeded, play is halted, and an error message is presented. All prize money is lost and the stage is marked as failed. 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. Such behavior will generate response errors and result in negative reinforcement. Thus, the MindPower Builder requires players to make careful choices, pay attention to cues and wait until it is appropriate to respond in order to win.