

A Cognitive Training Program in Learning Disability: A Program Evaluation and Follow-Up Study

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Abstract : To author's best knowledge we are in absence of studies on cognitive program evaluation and we are certainly short of programs that prove to have high effect sizes with strong retention results. The purpose of our study was to investigate the effectiveness of a comprehensive cognitive training program, namely BrainRx. This cognitive rehabilitation program target and remediate seven core cognitive skills and related systems of sub-skills through repeated engagement in game-like mental procedures delivered one-on-one by a clinician, supplemented by digital training. A larger sample of children with learning disability were given pretest and post-test cognitive assessments. The experimental group completed a twenty-week cognitive training program in a BrainRx center. A matched control group received another twenty-week intervention with Feuerstein's Instrumental Enrichment programs. A second matched control group did not receive training. As for pre- and post-test, we used a general intelligence test to assess IQ and a computer-based test battery for assessing cognition across the lifespan. Multiple regression analyses indicated that the experimental BrainRx treatment group had statistically significant higher outcomes in attention, working memory, processing speed, logic and reasoning, auditory processing, visual processing and long-term memory compared to the non-treatment control group with very large effect sizes. With the exception of logic and reasoning, the BrainRx treatment group realized significantly greater gains in six of the above given seven cognitive measures compared to the Feuerstein control group. Our one-year retention measures showed that all the cognitive training gains were above ninety percent with the greatest retention skills in visual processing, auditory processing, logic, and reasoning. The BrainRx program may be an effective tool to establish long-term cognitive changes in case of students with learning disabilities. Recommendations are made for treatment centers and special education institutions on the cognitive training of students with special needs. The importance of our study is that targeted, systematic, progressively loaded and intensive brain training approach may significantly change learning disabilities.

Keywords : cognitive rehabilitation training, cognitive skills, learning disability, permanent structural cognitive changes

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