

**The Effects of Peer Mediation in Math  
(PMC-M) Program on Mediated Learning  
Strategies, Executive Functions Math  
Discourse, and Performance among  
Students with Learning Disabilities**

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## Abstract

The main objective of the current study is to examine the effects of *Peer Mediation with Children in Math* program (PMC-M) among students with severe learning disabilities in three domains: (a) Mediated learning strategies, (b) Mathematical discourse and (c) Cognitive modifiability as manifested in executive functions (planning and self-regulation) in mathematical performance. Other objective is to examine the contribution of the *Mediated Learning Experience* (MLE) strategies to the prediction of *Structural cognitive modifiability* (SCM), as it reflected from the cognitive tests. A sample of junior high school male students ( $n = 110$ ) studying in special education classes of regular schools participated in the study. The sample was composed of 55 dyads of mediator-learner. The mediators come from 9th Grade and the learners from 7th Grade in the same school. The intervention program includes two components: A-intervention for mediation With *Peer mediation program in children*, PMC (5 sessions of 45 minutes each) and B-teaching with the *Seria- Think program*, STP (2 sessions of intervention that was applied by using the *Seria-Think- advanced version*, (ST 7 x 7). Component A was focused on theoretical aspects of teaching and component B on content. Mediators were assigned randomly to one of four subgroups based on a Salomon-type design ( $2 \times 2$ ). Group 1 received both components (A+B), Group 2 received component A, Group 3 received component B, and group 4 received a substitute program. Each dyad was videotaped for 20 minutes following a session of peer interaction. The interactions were analyzed for MLE strategies and math discourse. All participants were administered pre- and post-intervention tests of self-regulation and planning as well as math performance. The main hypotheses were that A- mediators, who received both components (PMC+ ST) of the program, will show more efficient mediation strategies, higher math discourse and math performance, and higher enhancement of executive functions (planning and self-regulation) than the other groups, and B- There will be a partial contribution of MLE strategies to the prediction of SCM, as it reflects from the achievements in the cognitive tests after the intervention. The results indicated that Group 1 showed significantly higher mediation strategies and math discourse as well as higher pre- to post-intervention improvement in all variables than in the other groups. Group 3 showed higher improvements than Group 2, and Group 4 was the lowest in all variables. Moreover, there was found a partial contribution of the SCM strategies to the prediction of SCM. The importance of this study is in the theoretical and practical understanding of peer-mediation as an effective learning methodology for development of executive functions (self-regulation and planning) of students with learning disabilities.

Key words: Learning disabilities, Mediated learning experience (MLE), Structural cognitive modifiability (SCM), Peer mediation, Executive functions, Mathematical discourse, Mathematical performance.