

**EFEKTIVITAS TRAINING FUNGSI EKSEKUTIF MELALUI
PERMAINAN DIGITAL DALAM MENINGKATKAN KAPASITAS
FUNGSI EKSEKUTIF DAN PERFORMA AKADEMIK
MATEMATIKA**

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Abstrak

Performa bermatematika anak-anak Indonesia, dilaporkan jauh dari harapan. Penelitian menyebutkan kemampuan matematika anak Indonesia berada pada level rendah. Temuan terdahulu menyebutkan fungsi eksekutif berperan dalam performa dan prestasi matematika. Penelitian ini bertujuan menguji efektivitas penggunaan training terkomputerisasi yang mengadopsi paradigma pengukuran fungsi eksekutif, untuk mendongkrak performa bermatematika. Paradigma tugas seperti n-back task, flanker task, go no/go task, numerical-estimation task, dan stroop task, dirangkai menjadi suatu latihan melalui aplikasi OpenSesame®. Kelompok eksperimen (n=32), diberikan 45 menit training selama 7 hari, dan diberikan tes matematika pada pre dan post-tes. Kemudian, dibandingkan dengan kelompok kontrol (n=34) yang juga diberikan pre dan post-test tanpa diberi perlakuan apapun. Hasil pengujian menunjukkan perbedaan rerata yang signifikan ($t=-5,04$; $p<0,05$) pada kelompok eksperimen antara hasil pretest dan posttest. Sedangkan pada kelompok kontrol, tidak ada perbedaan signifikan ($t=-1,21$; $p>0,05$). Hasil uji ANAVA terhadap skor kapasitas fungsi eksekutif setiap sesi menunjukkan perbedaan signifikan ($F=13,47$; $p<0,05$), dengan plot rerata skor meningkat.

Kata Kunci : Performa Akademik, Matematika, Fungsi Eksekutif, Kapasitas Fungsi Eksekutif

DIGITAL PLAY EXECUTIVE FUNCTION TRAINING EFFECTS ON EXECUTIVE FUNCTION CAPACITY AND MATHEMATICAL PERFORMANCE

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Abstract

Indonesian children's mathematical performances, reportedly far from expectation. Several studies suggest Indonesian Children mathematical performance be at a low level. The previous finding said the executive function has a role in mathematical performance and achievement. This study aims to examine the using of computerized training adopting executive function measures paradigm to improve mathematical performance. N-back tasks, Flanker tasks, Go/No-Go tasks, Numerical-estimation tasks, and Stroop tasks paradigms strung together as training via OpenSesame® program. Experiment group (n=32), trained with 45 minutes a day for 7 days executive function training, and measured by pre and post mathematics test. After all, we compared the results with the Control group (n=34) which also measured by pre and post mathematics test without any treatment. Results found there are significant mean differences ($t=-5.04$, $p.<.05$) in the experiment group between pretest and posttest, but there is no significant differences in Control group ($t=-1.21$, $p.>0.05$). Executive function capacity on ANOVA test each training sessions showing significant differences ($F=13.47$, $p.<.05$), with the increased mean score on the mean plots.

Keywords : Academic Performance, Mathematics, Executive Function, Executive Function Capacity