

Task-Based and Self-Reported Executive Function Measurements: Are Both Measurements Meaningful for Predicting Study Success?

D.M. Manuhuwa¹, M. Snel- de Boer¹, J.W. de Graaf¹, J. Fleer²

¹ Saxion University of Applied Sciences, School of Applied Psychology and (International) Human Resource Management, Program Employability Transition, Section Inclusive Society, the Netherlands.

² University of Groningen, University Medical Center Groningen, Department of Health Sciences, Section Health Psychology, the Netherlands

Abstract

Some studies on executive functions (EF) in higher education report a predictive relationship between EF and study success. In these studies, EF was measured either with neuropsychological tasks, which test core EF directly and objectively (i.e., inhibition, working memory, cognitive flexibility), or via self-report questionnaires, which test EF indirectly and subjectively. However, rarely are both measurements taken. This is unfortunate precisely because they capture different underlying mechanisms related to EF and could yield different but complementary insights about EF.

Our study examines the predictive power of task-based and self-reported EF on academic success. We used an ex post facto design in which 748 first-year Applied Psychology students completed self-reported questionnaires about their perceived EF problems and performed cognitive tasks. Maximum likelihood correlations were calculated for 474 students. Data from 562-610 first-year students were then analyzed using a hierarchical regression analysis with pairwise missing values. Our findings show no substantial overlap between task-based and self-reported EF. Furthermore, the model of self-reported EF explained 12% of the variations in academic success after one academic year; Adding task-based EF increased this percentage to 14%. In conclusion, insights into self-reported EF, particularly, predict study success to a small extent. It could be useful to monitor levels of self-reported EF in higher education.

Keywords: executive functions, task-based measurements, self-reported measurements, study success, higher education