

The Effects of Digital Natural Exposure on Prepotent Response Inhibition Control

Beatrice Gracia Ermida Sianturi¹, Satriyo Priyo Adi, S.Psi., M.Sc.²

^{1,2}Universitas Gadjah Mada

e-mail: *¹beatricegraciaermidasianturi@mail.ugm.ac.id, ²satrio.priyo.a@ugm.ac.id

Abstract. This study aims to investigate the effects of natural conditions on prepotent response inhibitory control through digital screens in the Indonesian population using Stroop tasks. With growing concerns about reduced inhibitory control resulting from excessive screen time, the Attention Restoration Theory (ART) aims to demonstrate that natural environments can restore the mental psyche, regaining the lost attention span people once possessed. Despite previous research demonstrating restorative benefits of physical exposure to nature, research on digital nature, such as images, remains unclear, particularly in non-Western countries. This experimental study employs a within-subjects design with 26 participants, who completed a Stroop task before and after viewing digitally presented images of Indonesian nature, Western nature, and control urban images. The reaction time is then analyzed to measure the difference in Stroop interference tracking each stimulus. What this study aims to do is (1) determine whether exposure to nature through digital screens reduces interference, insinuating a positive result in inhibitory control, and (2) assess ART's applicability to an Indonesian population, as results could lead to a much more efficient and affordable way to control inhibition and increase productivity. The results of this study indicated no significant difference in prepotent response inhibitory control across western natural, urban environment, and Indonesian natural condition, yielding null findings regarding the restorative superiority of digital nature over urban images in this context. While digital nature can serve as a restorative intervention, its impact on an Indonesian population may require novel or anonymous condition to prevent active cognitive retrieval.

Keywords: *inhibitory control, Prepotent Response Inhibition, digital nature exposure, Attention Restoration Theory*