



Symbol Digit Modalities Test-Oral Version: An Analysis of Culture Influence on a Processing Speed Test in Argentina, Mexico, and the USA

María Bárbara Eizaguirre, Sandra Ines Vanotti, Adriana Aguayo Arelis, Brenda Rabago Barajas, Evangelina Valeria Cores, Miguel Angel Macías, Ralph H. B. Benedict, and Fernando Cáceres

^aResearch Institute of Psychology, School of Psychology, Buenos Aires University, Buenos Aires, Argentina; ^bMS Clinic, Buenos Aires Institute of Neurosciences (INEBA), Buenos Aires, Argentina; ^cHealth Sciences, University of Guadalajara, Guadalajara, Mexico; ^dGeneral Hospital of Acute Diseases Eva Perón - CONICET; ^eDepartment of Neurology, School of Medicine, Department of Neurology, University at Buffalo, Buffalo, NY, USA

ABSTRACT

The Symbol Digit Modalities Test (SDMT) is an information processing speed test. The aim of this study was to compare the SDMT across three samples: the USA, Mexico, and Argentina. The hypothesis is that performance will vary based on native language and cultural differences between these countries. The SDMT was administered to 129 healthy volunteers. Participants from the USA performed better than participants from Argentina and Mexico ($p < .01$), and no differences were observed between the latter groups ($p = .15$). Processing speed differs between the studied populations of Latin America and Anglo-America. Possible interpretations of this result are presented.

ARTICLE HISTORY

Received 27 September 2019
Revised 20 February 2020
Accepted 26 February 2020

Introduction

Processing speed evaluation

Neuropsychological assessments are very useful to detect if the cognitive function of a person is compromised, as well as to correctly plan their treatment and rehabilitation in case they need it (Strauss, Sherman, & Spreen, 2006). When performing such evaluations, information processing speed is a particularly relevant cognitive domain for describing the neuropsychological profile of patients with neurological damage (Chiaravalloti, Christodoulou, Demaree, & DeLuca, 2003; Foong, Hamid, Ibrahim, & Haron, 2018). Information processing speed can be defined as the speed in which a person can understand or react to the information they receive. It refers either to the time needed to execute a cognitive task or to the amount of work that can be done within a given period of time (Costa, Genova, DeLuca, & Chiaravalloti, 2017; Goverover, Genova, Hillary, & DeLuca, 2007). This cognitive function involves different tasks that can vary extensively in terms of complexity, from simple recognition and output speed to more challenging tasks requiring cognitive interference control (Goth-Owens, Martinez-Torteya, Martel, & Nigg, 2010). Nevertheless, a consensus definition of processing speed as a neuropsychological construct has not yet been reached (Shanahan et al., 2006). Shanahan et al. (2006) proposed a broad definition of processing speed as an underlying cognitive efficiency at understanding and acting upon external stimuli, which includes integrating low-level perceptual, higher level cognitive, and output speed. Moreover, processing speed is an elementary cognitive function that influences downward processes such as learning, memory, word retrieval and executive function (Costa et al., 2017).