



University
of Victoria

Graduate Studies

Notice of the Final Oral Examination
for the Degree of Doctor of Philosophy

of

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MSc (University of Victoria, 2017)

BA (University of Alberta, 2014)

**“Re-conceptualizing Executive Functions: A Taxometric
and Network Approach”**

Department of Psychology

Thursday, March 30, 2023

8:30 A.M.

Virtual Defence

Supervisory Committee:

Dr. Mauricio Garcia-Barrera, Department of Psychology, University of Victoria (Supervisor)

Dr. John Sakaluk, Department of Psychology, UVic (Member)

Dr. Eiko Fried, Department of Social Sciences, Leiden University (Outside Member)

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Dr. Lincoln Shlensky, Department of English, UVic

Abstract

Executive function is a neuropsychological construct that describe a collection of cognitive processes that aid in complex, goal-directed behaviours. In two manuscripts, the underlying assumption of dimensionality in latent variable methods is examined and an alternative conceptual model is discussed. The first manuscript uses two large demographically matched samples to assess the latent structure of two commonly studied executive functions, inhibition and set shifting, using taxometric methods. This study demonstrated latent dimensionality for inhibition and set shifting in both performance-based and behavioural rating measures, providing empirical support for the widespread usage of latent variable methods in typically developing populations across the lifespan. The second manuscript uses the same samples as the first to provide an alternative to latent variable methods when modelling executive functions. Network models were produced using the same data and results are discussed in the context of improvements in theory and clinical utility. Taken together, these manuscripts provide additional impetus for the importance of having strong theoretical reasons for performing specific analyses in executive function research.

Keywords: executive functions, taxometrics, network models