Assignment 4

SEM 2: Structural Equation Modeling
Write a scientific essay (max 1,000 words) on one of the topics below. You are not expected to become an expert in these topics. The deadline of this assignment is Thursday May 21 11:00. Note, this assignment is optional. If you make this assignment, it will only weigh in for your final grade if the assignment grade will improve your grade.

**Topic 1 (difficulty: 1)**
Read the following paper:
Write an essay describing the g-factor theory and mutualism theory for cognitive development, how Kievit et al. (2017) compare between these models, and what they conclude.

**Topic 2 (difficulty: 1)**
Read the following paper:
Write an essay on what is indicated with a positive manifold, and discuss four (the first being factor analysis) explanations for the positive manifold.

**Topic 3 (difficulty: 2)**
Read the following paper:
From a latent variable modeling perspective, write an essay on how the Gaussian graphical model (undirected network) can be used to augment SEM.

**Topic 4 (difficulty: 2)**
Read the following paper:
Write an essay discussing why cross-sectional results may not lead to conclusions regarding within-person relationships. Include an example of when cross-sectional analysis leads to a different conclusion than time-series analysis.

**Topic 5 (difficulty: 3)**
Read the following paper:
Write an essay on Peter Molenaar’s thoughts on the generalizibility of results based on inter-individual variance (e.g., cross-sectional analysis) to intra-individual conclusions. Describe the assumptions required for Gaussian (normally distributed) processes, and if these are plausible for studying questions you are interested in.

**Topic 6 (difficulty: 3)**
Read the following paper:
Write an essay describing some problems you may encounter when not taking trait-level variation in the cross-lagged panel model into account.