INTRODUCTION

Variable-centered measures derive their significance from differences between individuals for a latent dimension. Using variable-centered measures, research has inferred individual-level findings from aggregated, population-level averages. However, such findings do not necessarily represent any individual in the sample. Resulting policy could thus be based on findings that represent nobody (Rose et al., 2013).

Developmental systems theories provide a framework in which findings are based on individuals. Cantor et al. (2018) and Osher et al. (2018) argue that youth develop within unique contexts, wherein multiple constructs contribute to the development of each person, and each person experiences these constructs in a unique manner. Thus, if development is specific to each person, as posited by Bornstein’s (2017) Specificity Principle, developmental research must use a nonergodic, person-specific approach.

The Story of Average vs. Individual

Such an approach can be found in person-specific measurement, which assesses changes in variables within an individual, not across individuals. One key aspect of development is Intentional Self-Regulation (ISR), which involves setting goals, monitoring one’s behavior to ensure it is in line with those goals, and persisting until goals are reached. ISR has previously been measured by Selection, Optimization, and Compensation (SOC).

One example of a nonergodic, variable-centered study using SOC comes from the 4-H Study of Positive Youth Development (Lerner et al., 2005). The subsample average for each SOC measure tells a different story than the individual trajectories in the subsample. The average portrays a relatively stable, moderate trajectory, and, by definition, implies equifinality in the sample (see Figure 1).

In contrast, the individual trajectories portray a wide variety of non-linear trajectories, which reflect multifinality (see Figure 2). This contrast is important because practitioners, if assessing an average, may only create one policy that is not designed to adequately serve any one individual. But if the individual trajectories are analyzed, a more nuanced policy acknowledging multiple contexts and pathways can be applied, resulting in more positive outcomes for youth.

The Story of Average vs. Individual (continued)

The Science of Learning and Development (SoLD) Measures and Methods Across the Developmental Continuum (MMDC) project is implementing age-differentiated, short-term, longitudinal studies using intensive within-person measurement techniques. One survey-based measure is of ISR, adapted from a measure with basic psychometric properties required for person-specific measurement: reliability, validity, and measurement invariance.

We developed a self-regulation measure based on the Children’s Self-Efficacy Scale (Bandura, 2006) and adapted the Freund & Baltes (2002) conceptual model of self-regulation. Items were primarily derived from the Bandura (2006) sub-scale of Self-Efficacy for Self-Regulated Learning. Items were adapted for relevant content and repeated use (multiple times per week) and categorized by the Freund and Baltes (2002) self-regulation constructs of selection and optimization. Self-Control items were adapted from the Child Trends (2014) measure of Self-Control.

Selection:

Today I finished my classwork on time
Today I brought everything I needed for class
Today I set goals for my work
Today I started my classwork right away
Response options: True, More True Than False, Neither True nor False, More False than True, False

Optimization:

Today, I tried my hardest to do my classwork
Today, I listened carefully to the teacher’s instructions
Today I tried hard to finish all my classwork
Today, I tried hard to pay attention
Response options: True, More True Than False, Neither True nor False, More False than True, False

Self-Control:

Today, I waited for my turn patiently
Today, I sat still when I was supposed to
Today, I waited my turn to talk in class
Response options: True, More True Than False, Neither True nor False, More False than True, False

We hope our project will enhance understanding and optimization of each individual’s development.