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Method considerations for school psychology from longitudinal research on gifted students

Abstract

This article draws from longitudinal research on gifted students to provide method considerations for school psychology research. First, we provide some background of gifted and talented education in the United States. Then, drawing from multiple longitudinal samples of gifted students, in particular the Study of Mathematically Precocious Youth (SMPY), we illustrate the role of replications, including constructive replications. In the middle two sections, we highlight methodological design features focused first on predictors, and then on outcomes, considering types, magnitude, and breadth. Finally, we provide additional considerations and future directions, including expanding the outcome domain, overcoming the limitations of past gifted and talented research studies, and suggesting possibilities for future research. Our article may help improve school psychology research as well as assist school psychology researchers interested in conducting their own longitudinal studies using gifted samples.

Introduction

School psychologists can often be one of the first points of contact for gifted students and their parents and have the technical expertise in measurement and assessment to recognize the individual developmental and educational needs of students who have gifts or talents in specific or more global domains that warrant more specialized and tailored educational opportunities. From that perspective, school psychologists may be an underappreciated part of both the identification and talent development aspects of gifted education. This article introduces some method considerations from longitudinal research on gifted populations for school psychologists and researchers, with the goal of helping school psychologists understand core research and practice findings from the gifted education field and, in addition, providing them with valuable tools and perspectives for studying gifted students themselves.

We do not intend our treatment to be a comprehensive review of longitudinal research designs or the gifted education literature. Instead, we highlight a few important methodological features of longitudinal studies of gifted individuals, with an emphasis on the United States and one longitudinal study known as the Study of Mathematically Precocious Youth (SMPY; Lubinski & Benbow, 2021). We focus on the United States and

SMPY as our target audience is school psychology researchers and practitioners working in schools or educational contexts within the United States. Beyond these contexts, we point readers to studies of gifted students in contexts outside of the United States (e.g., Preckel et al., 2017; Ramos et al., 2023; Wirthwein & Rost, 2011). When appropriate, we direct readers to more advanced and detailed treatments of the issues we explore in this article.

We focus our attention on longitudinal studies because they often allow researchers to draw causal inferences, especially in the context of hypotheses based on robust theories and replicable results. Although experimental studies are considered the gold standard for making causal inferences (Cartwright, 2009), these studies are not always possible in educational research for practical and ethical reasons, and longitudinal designs are a powerful alternative when experiments are not possible. Moreover, findings from longitudinal research can also be illuminating for other reasons, including more fully understanding psychology and human development across the lifespan, with schooling as one part of that broader developmental process. Less considered are the methodological insights that can arise from conducting longitudinal research on unique populations or samples. To that end, in this article we illustrate longitudinal methods that can meaningfully inform school psychology researchers who encounter longitudinal research and who may desire to conduct their own longitudinal research on gifted students. Our focus is largely on SMPY (Lubinski and Benbow, 2000, Lubinski and Benbow, 2006, Lubinski and Benbow, 2021) as it is the most contemporary longitudinal study of gifted students to date and is ideal for highlighting methodological considerations for school psychology. However, we include longitudinal research using other databases, also focusing on the gifted, to illustrate patterns of data that replicate.

In the first section of this article, we include a brief background relating to the identification of gifted students in the United States, the SMPY study, and then discuss replications, which are important to all kinds of research. Then, we illustrate replications using SMPY data, discuss replications using other relevant population representative samples of gifted youths, and discuss constructive replication examples. The next two sections highlight methodological design features. The second section focuses on predictors, including their magnitude and breadth. The third section focuses on outcomes, including types, magnitude, and breadth. In the fourth and final section, we note additional considerations and future directions, such as expanding the outcome domain, overcoming limitations in past gifted and talented research studies, and suggest future research before concluding this article.

Section snippets

Identifying gifted students in the US

To help provide background for the reader, we briefly review the context of gifted education in United States' schools and in particular the process used to identify students for the gifted and talented designation. In public schools, gifted identification can take place throughout the K–12 years, but most often occurs in the early grades, and typically, the assessments used and procedures for identification are determined at the district level within the constraints of individual state

Methodological design features: predictors vs. outcomes

We further divide longitudinal studies into two categories (cf., Kell & Wai, 2019; Sackett et al., 2012).² In *predictor-focused* longitudinal studies, focal constructs are identified at the outset and their associations with other

Methodological design features: outcomes

Ideally, investigators should put as much care into choosing the outcomes of their longitudinal studies and deciding how to measure those outcomes as they do when selecting the predictors and other focal constructs that they study at the beginning stages of research. To the extent that a longitudinal study is concerned with identifying indicators of “success” (e.g., academic, career, interpersonal, mental health, physical health), investigators must think carefully first about how they want to

Additional considerations and future directions

In the preceding sections, we used the design and results of SMPY to outline beneficial practices for conducting longitudinal research that may be helpful in improving the practice of such research in school psychology. In the following sections, we briefly explore some additional issues school psychologists may want to consider when conducting longitudinal research.

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