



## VANDERBILT Peabody College

### Study of Mathematically Precocious Youth (SMPY): Seeking Support for an Age-65 Follow Up and Ongoing Research

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The U.S. is currently experiencing a dis-harmonic convergence of Sputnik moments. Cyber-insecurity, pandemics, climate change, and global unrest threaten our national and personal well-being. We need better ways to identify and nourish the intellectual talent required to protect, maintain, and advance modern cultures—with an awareness that STEM innovation and symbolic analysis are the primary drivers of information-based economies.

For decades, co-directed by [David Lubinski](#) and [Camilla P. Benbow](#), [SMPY](#) has tracked five cohorts of over 5,000 intellectually talented participants and thereby uncovered procedures and interventions for doing so. However, across the nation, as effective procedures for identifying and developing intellectual talent are being jettisoned, adolescents with the greatest potential for addressing the complex challenges facing us are being thwarted in their desire to develop sophisticated expertise. Unfortunately, these proven, effective educational interventions for intellectually precocious youth are being questioned on political rather than scientific grounds (Raleigh, [2023](#); Abbot et al., [2023](#)).

A [14-minute documentary](#) of what we have learned over the first 45 years of SMPY's longitudinal research and a 3-page story about SMPY in *Nature* ([2016](#)) underscore why allowing our most talented youth access to developmentally appropriate educational opportunities is more needed than ever before. They will solve those problems and provide the intellectual and scientific infrastructure modern societies will need to survive and thrive.

#### What are some robust longitudinal findings?

1. The knowledge producers, those most likely to develop eminent careers, can be identified by age 13 (Kell et al., [2013](#); Makel et al., [2016](#)).
2. There is no ability threshold beyond which additional ability doesn't matter (Park et al., [2007](#), [2008](#)). Across general and specific cognitive abilities (mathematical/spatial/verbal), the top 1% of ability constitutes over one-third of the ability range and differences therein matter for consequential educational → occupational → creative outcomes (Wai et al., [2009](#); Kell et al., [2013](#); Makel et al., [2016](#)).
3. Ability level predicts how far a person is likely to rise in their chosen career, while the pattern of specific ability relative strengths and weaknesses (mathematical v. spatial v. verbal abilities) determines the nature of accomplishments (Lubinski, [2016](#); Lubinski & Benbow, [2000](#), [2006](#)).
4. Spatial ability, which adds value to mathematical and verbal reasoning abilities (Wai et al., [2009](#); Kell et al., [2013](#)), is highly valuable but underappreciated.
5. The level and pattern of interests assessed by age 13 can further refine educational/occupational forecasts by contributing to differential educational/occupational choices and performance after choice (Bernstein et al., [2019](#); McCabe et al., [2020](#)).
6. How much time individuals are willing to invest in their careers varies widely within the top centile of general and specific abilities. These individual differences matter immensely; they predict differential life accomplishments and consequential outcomes (Lubinski & Benbow, [2021](#); Lubinski et al., [2023](#)).
7. There are large individual differences in lifestyle preferences and in how time is allocated. Abilities and passions are not sufficient to predict occupational distinction and creativity among high-potential individuals, even when they consistently enjoy developmentally appropriate learning opportunities. Other life forces and personal preferences compete for time allocation and contribute to the many ways in which individuals choose to construct a fulfilling and meaningful life (Lubinski et al., [2023](#)).
8. Most importantly—while intellectually precocious students tend to do extremely well in life, those who are allowed to advance at their desired rate of learning and experience interventions that challenge them intellectually eventually contribute more (Bleske-Rechek et al., [2004](#); Park et al., [2013](#); Wai et al., [2010](#)). While the field has been obsessed with finding which interventions are most effective, several educationally efficacious interventions are functionally equivalent (Wai et al., [2010](#)).

For other key findings, two articles combined summarize the past 5 decades of empirical findings (Lubinski & Benbow, [2021](#); Lubinski et al., [2023](#)).

### ***Advancing SMPY's mission and reach***

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Over the next five years, SMPY will continue preparing for the next generation, in part, by setting up its database so that it can be mined by future researchers to investigate the full life cycle of its participants, their children, and grandchildren. SMPY is thereby positioned to continue “giving back” for decades to come, which brings us to why we need external support. SMPY’s findings are widely known in the scientific community, and we have won major awards. Sadly, however, the above findings are deeply under-utilized or even ignored by educational and political leaders, and it has become exceedingly difficult to find support for our ongoing research and training.

**We seek to conduct an age-65 follow-up of SMPY’s two oldest cohorts of over 2,000 participants ([SMPY Outline](#)).** Our surveys are extensive, and we consult widely with colleagues to ensure assessments are as comprehensive as possible [see Acknowledgements: Lubinski et al., [2006](#), pp. 198-199; Lubinski et al., [2014](#), p. 2230]. Our completed ages -13, -18, -23, -33, -50, and (anticipated) age-65 surveys ([SMPY Surveys](#)) provide a wealth of information to answer questions about high-impact human accomplishment and eminence, as well as what is required to optimally develop high-potential individuals who vary tremendously in their intellectual and non-intellectual personal attributes (Achter et al., [1996](#)). Knowing more about the psychological unfolding across their lifespan is crucial for the continuance of a high-tech society and our planet.

As we execute our 5-year research agenda, we will continue to train graduate students and postdocs within the Quantitative Methods Division at Peabody College of Vanderbilt University. Current examples include two publications that defuse unwarranted concerns over excelling academically (Bernstein et al., [2021](#)) and occupationally (Kell et al., [2022](#)). Another set isolates contrasting (“finely tuned”) constellations of psychological attributes among elite STEM doctoral students and intellectually precocious adolescents who ultimately form the small subset of those who become truly eminent in their discipline (Bernstein et al., [2019](#); McCabe et al., [2020](#)). Two additional ongoing studies document the views of intellectually prodigious adults on: the extent to which uniform educational practices adequately meet their learning needs (Noreen et al., [2023](#)), and the impact of their pro bono volunteering contributions to local and global communities (McCabe et al., [2023](#)).

### ***Opportunities for impact***

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**By supporting this next phase in our research, your support will contribute to the development of the next generation of talent-development researchers, the furtherance of SMPY’s longitudinal research, and program developers with specific expertise in identifying and serving underrepresented populations.** For example, for over 20 years, our longitudinal follow-ups have concluded with the option for participants either to receive a \$20 Amazon gift certificate or to donate that amount to support scholarships that allow intellectually talented adolescents from economically challenged households to attend academic summer residential programs for talented youth—around 70% donate (Lubinski et al., [2023](#), p. 283).

Over the years, we have contributed tens of thousands of dollars to support this cause through [Vanderbilt’s Programs for Talented Youth](#); however, we have yet to study the students these scholarships benefit. Along with the donations from our upcoming survey, we will implement systematic procedures for identifying and assessing students from economically challenged homes as they attend our summer programs (and beyond). The identification model will then be scaled to other settings to allow more individuals from underrepresented populations the opportunity to develop their talents. Since exceptional talent exists in unexpected places, we must cast a wide net.

*To [make your gift](#) to the Study of Mathematically Precocious Youth, please support the Peabody Dean’s Discretionary Fund with a note in Special Instructions: Please designate this gift to Study of Mathematically Precocious Youth.*