NORC at the University of Chicago

CHRR AT THE OHIO STATE UNIVERSITY

TASK 2.2.2
K-12 SCHOOLING AND COGNITION CONTENT PANEL REPORT FINAL

August 29, 2022

Contract Deliverable

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Document Change Log

Published Date	Document Version No.	Pages Affected	Description of Revision	Author

Introduction

The National Longitudinal Surveys (NLS) are a significant, long-running program of the United States (U.S.) Bureau of Labor Statistics (BLS), designed to support research into how Americans navigate changes in the economy and transition through various life course stages. As the youngest NLS cohort members are now entering their 40s, the BLS seeks to begin a new cohort of adolescents, targeted for fielding in 2026. This NLSY26 cohort will enable researchers to understand new trends in labor market experiences, education, and a wealth of other factors that are affecting this new generation.

BLS contracted with NORC at the University of Chicago and CHRR at The Ohio State University on an NLSY Needs Assessment to provide BLS with topical content and methodological inputs that a future design team can use to create an NLSY26 survey responsive to key research goals. As part of this Needs Assessment, NORC convened a content panel on K-12 Schooling and Cognition, comprised of federal and non-federal subject matter experts, to provide BLS with high-level recommendations that highlight emerging research themes, social trends, and policy changes relevant to consider for future data collection; alternative data sources that might supplement a new survey; and methodological issues that may impact data collection for the NLSY26. The content panel met multiple times between April and June 2022, to discuss recommendations and tradeoffs around content and survey design for BLS to consider for the new cohort.

The major recommendation in this report is that because scientific research in children's education and cognition and the landscape of children's educational experiences have evolved quite a bit since the NLSY97 cohort began, measurement capturing K-12 schooling and cognition needs to broaden in three ways.

First, it has become clearer that educational achievement and experiences predicting adult labor market and other outcomes must incorporate a wider array of cognitive skills than traditional school subject areas of reading, mathematics, and science. So-called "non-cognitive skills" (which are actually quite cognitive), including social-emotional skills and executive function, have been found to predict adult employment and life success quite robustly, in some cases even more strongly than traditional academic achievement. This discovery might reflect a twenty-first century adult employment environment in which skills of getting along in a team, adapting to unanticipated circumstances, and learning new skills across the lifespan have replaced a former environment characterized by assembly line repetition; alternatively, it could simply reflect the recent realization by scientists and employers that these skills are important and have always been important. To acknowledge the importance of these skills, recommendations in this report are segmented into "academic learning" and "social-emotional learning."

Second, children's educational experiences have become more heterogeneous over the past 25 years. Children attend public schools, charter schools, and home schools, and they experience enrichment in many forms, including tutoring, after-school programs, special education, summer camps, and more. Students' exposure to shootings and violence has increased, along with increased security measures. To acknowledge the diversity of educational inputs, recommendations in this report are segmented into "in-school experiences" and "out-of-school experiences."

Third, children's outcomes are influenced to a greater extent than previously acknowledged by both early-life experiences, such as early childhood education and elementary school tracking, and more macro-environmental experiences, such as an economic recession, a global pandemic, and even war. Prospective studies have shown that early-life experiences predict adult employment outcomes with high precision, and evaluation studies have shown a favorable return on investment from early interventions that now

guide policy. Furthermore, dramatic macro-environmental events such as an economic recession, a global pandemic, or even a war exert strong influence that cannot be distinguished from age-related influences if a study is restricted to participants who do not vary much in age in any calendar year. Starting cohorts in the narrow range of ages 12 to 16 and relying on dubious retrospective reports of earlier life experiences (which are features of past NLSY designs) may lead to inaccurate measurement and misleading conclusions about the relative influence of skills and experiences measured initially in adolescence.

Instead, starting a cohort as early as age 6 may be necessary to capture these experiences reliably and validly. Of course, such a decision trades off a shorter period to reaching adulthood. Spreading the initial ages of cohorts across ages 6, 9, 12, 15, 18, and 21 affords dual advantages of measuring early life experiences contemporaneously and disentangling macro-environmental events from the age at which they are experienced. Recent advances in statistical analysis can capitalize on a study with planned missing data. This "accelerated longitudinal design" enables prospective analyses across ages 6 to 35 in a relatively short period of time and is the major recommendation by this panel.

The rest of the report is organized as follows. Section 2 and Section 3 describe the panel's recommendations related to topical content and survey design considerations. Section 2 describes content/topic-related considerations for future data collection with the new cohort, including: 1) emerging research themes, social trends and policy changes that are relevant to consider; 2) foundational data important for studying later life labor market and non-labor market outcomes; and 3) key areas of disparities and inequalities that may be important to measure. Section 3 describes survey design-related considerations relevant for the new cohort, including: 1) the extent to which recommended topics are covered in existing NLSY questionnaires used for the 1979 and 1997 cohorts; 2) methodological issues that may impact future data collection on the recommended topics; and 3) relevant alternative data sources that might supplement a new survey. This report organizes input for each of the sub-sections in Sections 2 and 3 in five domains: 1) academic learning; 2) social-emotional learning; 3) in-school learning experiences; 4) out-of-school learning experiences; and 5) educational outcomes.

Section 4 concludes with a prioritization of the panel's recommendations (including the methodology used to arrive at that prioritization) and a description of the tradeoffs considered for this prioritization.

Topic-Related Recommendations for the New Cohort

Emerging research themes, social trends and policy changes that are relevant for the content area

Academic Skills

Measurement of educational experiences and academic learning is of high priority because these constructs are malleable to investments in the early years (Agostinelli & Wiswall, 2016; Magnuson, 2007) and are some of the strongest predictors of long-term life outcomes (Borghans et al., 2016). Academic learning has always been a high priority in past NLSY protocols, but several trends over the past two decades suggest important revisions should be made to the NLSY protocol. These trends are related to the increasing diversity in the U.S. population, with more than 40% of Americans now identifying as people of color (U.S. Census, 2020), and in increasing diversity in skills demanded in the labor market.

First is the growing urgency of the problem of disparities across key demographic subgroups (e.g., children of color relative to White children; Reardon, 2011) in students' achievement and school performance. These disparities emerge in early childhood through biased societal experiences and continue across the life course. Understanding of these biases has led to a recent push to refocus attention from achievement gaps to gaps in early opportunity. Such a shift in focus requires a better understanding of the processes, structures, and policies in early life that limit students' educational and life prospects. Thus, improved measurement of early life experiences is crucial.

Second, over the last few decades there has been tremendous growth in the number and proportion of students classified as learning English as a second language. Between 1997-1998 and 2007-2008, the population of English language learners in the U.S. grew by over 50%, which is 6 times larger than the growth of the general student body (Batalova & McHugh, 2010). Today, 1 in 10 K-12 students is learning English as a second language (NCES, 2022). These students are identified as not English language proficient (not ELP) and must be captured in NLSY sampling, and their childhood experiences, academic learning, and social-emotional competence must be measured in valid ways. We do not recommend over-sampling of not-ELP students, but we do recommend careful identification of each student's history of being identified by the school system as not-ELP. Each student is assessed annually, and many students who were initially identified as not-ELP become so as they grow older. The annual history should be coded, optimally from inspection of the student's official school record.

Third, there has been an increasing policy investment to grow interest and participation in science, technology, engineering, and mathematics (STEM) careers, which can result in economic growth and innovation (e.g., U.S Department of Education, 2022). Researchers and policymakers have been particularly interested in increasing representation among women and students from marginalized groups. Despite this push, current trends in higher education for careers in STEM suggests continued underrepresentation of people of color and women (Fry et al., 2021).

Fourth, over the past several decades, there has been a tremendous increase in educational expectations among students. More specifically, the percentage of high school students who believe they will graduate from college has approximately doubled since the 1970s, even though college completion rates have not kept pace (Kurlaender & Hibel, 2018). Consequently, there is a growing mismatch between students' beliefs and attainment, with approximately one in two falling short of their educational goals (Reynolds & Baird, 2010).

Social-Emotional Skills

Beyond academic skills, the past several decades have seen a surging interest in children's social-emotional competence. Interest grew when Nobel Laureate James Heckman and colleagues (Heckman, Stixrud, & Urzua, 2006) asserted that "non-cognitive traits" in childhood have strong power to predict important labor market outcomes, even when controlling for cognitive measures such as intelligence and academic test scores. The field quickly evolved to realize the term "non-cognitive" is inaccurate because these important variables are, indeed, very cognitive, and the term "traits" is inaccurate because, unlike static traits in personality psychology, these variables are acquired like other skills. Nonetheless, the field took off when Heckman's group (Borghans, Duckworth, Heckman, & Ter Weel, 2008) used NLSY79 data to show that variables such as risk-taking and locus of control measured in childhood strongly influence later schooling outcomes and adult wages.

The constructs to be included in this new broad category are heterogeneous. Psychologists drew from another Nobel Laureate, Herbert Simon (Simon & Newell, 1972), to formalize the mental steps in processing social information (Dodge et al., 2022) that suggest key constructs of emotion recognition

(Pollak, Cicchetti, & Reed, 2000), attributional bias (Dodge et al., 2015), social problem solving (Matthys, Cuperus, & van Engeland, 1999), delay of gratification (Mischel, Shoda, & Rodriguez, 1989), future orientation and delay discounting (Steinberg et al., 2009), and related processes in decision making. Others note the relevance of social schemas (Huesmann, 2017), goals (Rose & Asher, 1999), and mindset (Dweck, 2017).

The importance of these constructs has been shown in prospective studies suggesting that, although academic skills predict high school graduation, early social competence better predicts adult outcomes of obtaining and retaining a job, family formation, mental health, and low economic burden on government (Jones, Greenberg, & Crowley, 2015; Sorenson, Dodge, & CPPRG, 2016).

An important distinction is made between skills a child acquires (e.g., emotion identification) and behaviors the child displays (e.g., bullying). The field is reaching consensus on capturing these diverse processes in the broad construct of social competence, and most school districts are now incorporating social-emotional learning into curricula (Langreo, 2022).

In-School Learning Experiences

Another important assertion from a large body of findings is the recognition that skills grow from a diverse set of in-school educational experiences. Since the last measurement of in-school experiences in the NLSY79 and NLSY97 cohorts, three major themes have emerged related to increased school security measures, student experiences with harassment and bullying in the social media era, and student access to advanced and enriched curricula.

First, the use of visible and non-visible security measures has become more widespread and more intense (Monahan & Torres, 2010). These measures include metal detectors, perimeter fences, surveillance cameras, locker checks, and the employment of school resource/police officers. It is important to know whether these increased measures contribute to students experiencing feelings of safety and/or surveillance, and whether those experiences impact student short- and long-term outcomes.

Second, increased harassment of students based on their race, sexual orientation, and other features has figured prominently in public speculation about the causes of mass school shootings. The use of social media has also proliferated since the last NLSY cohorts were in school and with it came a new arena for student bullying and harassment. Student experiences with bullying and harassment can adversely affect their academic performance and mental health outcomes (Kowalski & Limber, 2013).

Third, the number and type of advanced curricula and educational experiences to which students can be exposed have expanded greatly. Advanced Placement courses, International Baccalaureate curricula, gifted and talented programs, and advanced schools have expanded in multitudes since the NLSY97. To what extent do these courses benefit students' long-term outcomes? Does inequality by race and socioeconomic status increase if low-income and minority students are less likely to have access to advanced curricula (Francis, de Oliveira, & Dimmitt, 2019)? Likewise, special education programs for handicapped students have expanded, and the impact of these programs on students' overall education development is much-debated.

Out-of-School Learning Experiences

Federal, state, and local governments are devoting significant public resources to afterschool and summer enrichment programs to support student learning and development of ethnically diverse students from

low-income families (Vandell, Larson, Mahoney, & Watts, 2015), a change from the NLSY79 and NLSY97 cohorts. In 2021, additional funding of afterschool and summer learning programs was authorized to help ameliorate the negative effects of the COVID-19 pandemic on academic and social-emotional skills (Afterschool Alliance, 2022). The NLSY26 can provide an opportunity to study longitudinal relations between afterschool and summer enrichment activities and educational and social outcomes in the new cohorts.

Another social trend that merits consideration by the NLSY26 is adolescents' use of social media, videogames, and other technology during the out-of-school hours. Although prior NLSY cohorts included self-reports of time spent watching television and playing videogames, adolescents' engagement with social media platforms such as TikTok and Instagram has occurred since the NLSY97 (Best, Manktelow, & Taylor, 2014). The widespread use of cellphones is viewed as having important academic and social impacts on young people, which also should be studied (Yan, 2018).

Educational Outcomes

Finally, measurement of educational and employment outcomes in high school and beyond is essential. A number of trends have emerged since the last NLSY data collection that affects the relevance of data elements. First, the pathways through high school have diversified, to include a variety of career and technical education pathways, college credit accumulation in high school, international baccalaureate programs, and other advanced course taking. The COVID-19 pandemic has exacerbated some changes, increasing home schooling and other alternative pathways. Second, the ways that students accumulate skills and credentials during their post-secondary experiences have diversified to include credentials and micro-credentials, and researchers have more clearly identified the importance of credentials and college majors. Third, the costs of post-secondary education have, in some cases, increased substantially, while options for low-cost or free college have also emerged. This variance in cost combined with the potential of debt to affect college decisions highlights the increasing importance of understanding financial decisions in education planning and their implications. Fourth, the importance of addressing pressing issues such as climate change and inequality have intensified, combined with concerns about the erosion of democracy, pointing to the need for better understanding of attitudes toward public service, civic participation, and where and how individuals receive their information. The context variables (e.g., climate change, erosion of democracy) are broad issues and there is no need to measure them directly for each student. However, the panel thinks it is important to directly measure student attitudes towards public service, civic participation, and where and how individuals receive their information. Fifth, the emergence of social media as a primary communication tool has led to new positive opportunities for children but also to a new form of antisocial behavior. Sixth, and in part stemming from social media, has been an increase in the occurrence and identification of mental health issues.

Selected topics considered for data collection with the new cohort

Academic Skills

In addition to self-reports and parent reports of student education that are replicated from past NLSY protocols, high priority for the new NLSY are: 1) direct assessments of students' language, literacy, science, technology, and math skills; and 2) extraction of school administrative records. New technology enables sophisticated direct testing online that yields measures that are not biased by teacher stereotypes or other factors. These measures must be age-appropriate. For example, measures for children aged 6-12

should include assessments of math and reading from the Peabody Individual Achievement Test, along with assessments of language from the Peabody Picture Vocabulary.

School grades, end-of-grade test scores in reading and math (through eighth grade), and end-of-course scores in middle school and high school are important. We recommend that school records are the best source to obtain school grades, but parent or self-reports should be collected when school records are not available.self-report. Prior iterations of the NLSY have also included student reports of SAT scores along with ACT scores (when taken and highest score earned).

A child's work habits, amount of time completing homework, and how much this time is scaffolded by adults can be measured by self-report and parent report.

Social-Emotional Skills

We place high priority on measurement of social-cognitive skills, social behavior, and attitudes. Measurement of social-cognitive skills is optimally accomplished through direct testing using items that pose hypothetical scenarios and elicit responses (e.g., assessment of social problem-solving skills could be measured by asking questions such as "If another kid took your pencil off your school desk, what would you do to get it back?" and assessment of delay discounting could be measured by asking "Would you rather win a dollar today or ten dollars a month from now?"). Consideration must be given to the tradeoffs associated with the expense and plausibility of soliciting other sources such as peers and teachers, as well as the more modest validity of less expensive sources such as parents and selves.

Social behavior includes risky behaviors, deviant behaviors, competent behaviors, and relationships, all of which are important constructs to measure. This broad construct is optimally measured through observations by others, including peers, teachers, and parents, and through directly-observed behavior in natural and constructed circumstances (e.g., entering a new peer group). Peer nominations of liking, disliking, and popularity are especially predictive of adult outcomes, but feasibility of peer reports is low, so we place high priority on both self-report and report by parent.

Measures of excused and unexcused absences for each school year can be extracted from administrative records or teacher report. School discipline reports, including both infractions and sanctions of suspensions (in school and out of school), expulsion, referral to criminal justice system, and zero-tolerance consequences, can be measured by self-reports and school records.

It is important to measure a child's academic motivation, aspirations, and learning mindset and self-concept. Specific measurement of STEM attitudes and aspirations is central to understanding the development of gender difference in outcomes. Measurement of stereotype threat could help understand differences in development across race groups.

A child's impression about experiences and beliefs about school may be as important as the experiences themselves. Measures should be collected about a child's experiences of discrimination and mistreatment based on race, gender, or personalized status.

In-School Learning Experiences

It is important to understand the experiences a child has during school hours as possible influences on academic learning and outcomes. Experiences start with course taking, including newer pathways such as school-to-work courses and those in STEM areas. Beyond course titles, it is important to know which

courses are honors and which are tracked according to ability. Ability tracking is one way to understand peer experiences in school.

Children experience increasingly diverse educational pathways, including early college, vocational education and certification; Career and Technical Education courses and related work experiences that schools count as course credit; advanced placement and international baccalaureate programs; and advanced curricula. In addition to measuring pathways experienced, it is important to measure a student's experience of these pathways as challenging, stigmatizing, supportive, and affirming.

School-based academic support services, including tutoring and special education placements (and Individualized Education Plans [IEP]) for both remediation and giftedness can be measured for individual students through self-report and school records, and at the school level through school district records and websites.

Peer effects, measured by average performance of peers in classrooms, grade levels, and schools, are known to influence a child's learning. Schools now report average academic performance aggregated across all grade-level students, which can be extracted from school district records and websites for most public schools. This information may not be available from most private schools.

A child's experiences with school peers, particularly social isolation, loneliness, harassment, and victimization, can be measured from self-report and teacher report. These experiences can be measured in general as well as tied to specific causes such as race and gender identity.

A child's relationship with teachers in general, and a caring teacher or school adult, in particular, can shape educational development. The quality and satisfaction of these relationships can be measured by teacher reports and student reports (Ang, Ong, & Li, 2020).

Some students experience fear of safety in school, particularly in light of increased school shootings and evidence that gunshot violence has become the single highest cause of death in children aged 0-18. It is important to measure objective indicators of a school's security practices (e.g., metal detectors, surveillance camera, locker checks, school resource officers), indicators of school safety itself (injuries, homicides, suicides) from school district measures, and a child's personalized fear about threats and actions to protect students. Additionally, it is important to measure the extent to which students feel protected by or targeted by school safety measures (i.e., aggressive policing and disciplinary policies in schools).

It has become increasingly apparent that early-life in-school educational experiences shape a child's lifelong educational course. Measures should be collected from parent report of a child's birth-to-school educational history, including out-of-home childcare and education, structured preschool, pre-kindergarten, early developmental assessments, and early special educational interventions (e.g., speech therapy, physical therapy). Although it would be most valid to collect this information contemporaneously when the child is preschool-aged, a tradeoff is recognized that starting a cohort at birth would delay collecting information about adult labor market participation. Retrospective reports might be necessary. However, the validity of retrospective reports about these early experiences declines as the child ages. We recommend a compromise to begin a cohort at age 6, when a parent's report is still valid.

Out-of-School Learning Experiences

Children participate in increasingly diverse after-school and summer programs at schools and community-based organizations. Some activities are school-supported, including extracurricular activities such as sports, music, and clubs that typically have a specific content focus. Some students work at part-time jobs, and some attend religious activities. Summertime brings different experiences such as academically-oriented camps and enrichment activities. These activities should be measured not only for their occurrence but also for their timing and duration.

Children's time with peers, including the characteristics of those peers and whether the time is structured or unstructured, are important predictors of lifelong outcomes, and these experiences can be measured through self-report and parent report.

Children learn a great deal from experiences with adults. It is important to measure the amount of time a child spends with adults, the relationship between the adult and the child (e.g., camp leader, minister, parent), and the child's sense of happiness with the relationship.

Children's early-life experiences shape important outcomes, particularly adverse childhood experiences (ACEs, including abuse, trauma, and hardship) and social determinants. It is important to interview the parent about the child's developmental history, including ACEs, family formation and membership across ages, parents' marriage and divorce status, members of the household, adoption, foster care, and other out-of-home placements.

Some important influential life experiences occur at the community level, such as an economic downturn or a factory closing. Some occur at a more macro level, such as an economic recession or global pandemic. These experiences have both a general impact on a cohort and an individual impact that depends on specific experiences. It is important to measure macro and community experiences from archival records and individual experiences (e.g., family job loss, residential moves, divorce, family death from COVID) from parent and self-reports.

Educational and Employment Outcomes

Children's educational and employment outcomes have become more intertwined, diverse, and transient. They traverse different pathways through high school and post-secondary education, including school-to-work paths and community college and vocational programs that lead to different outcomes such as graduation, vocational credentials, and military service ranks. Students earn scholarships and loans and finance their education in different ways. They take on employment that they perceive as careers or temporary jobs and as part-time or full-time. Employment positions sometimes offer advanced education.

Young adults are intermingling employment with continued education over the life course. It is important to measure the sequencing of employment and reasons for termination and changing positions. Attitudes, job satisfaction, and aspirations are important to measure by self-report.

Important outcomes in young adulthood go well beyond education and employment. In the current world of climate change, political unrest, and global citizenship, it is important to measure civic participation, attitudes, and public service.

Success in the labor market depends not only on employment but also the quality of that employment experience (e.g., stability, promotions, performance review), mental health (including substance abuse, depression, despair, mental disorder, and professional services received), and sense of well-being and life satisfaction. All of these outcomes can be measured by self-report.

Related foundational data important for studying labor market outcomes

Inequality in earnings and labor market participation stems, at least in part, from the demand for highly skilled individuals (Heckman et al., 2006). Although there is a wide range of skills that are important for labor market participation across the life course (e.g., work ethic, self-esteem), there is evidence to suggest that academic skills in early and middle childhood are key predictors. For example, work by Murnane and colleagues (2001) used the NLSY79 and demonstrated that individuals' math and reading test scores represent two early markers of labor market success in adulthood. Although early achievement is predictive of labor market outcomes, very little of the gender and racial/ethnic gaps in the STEM labor force is accounted for by individuals' past academic performance (Eccles & Wang, 2016). Accordingly, other foundational data, such as student values and attitudes and experiences with discrimination, are necessary when centering issues of equity and inclusion in the labor market. For example, students who hold higher educational beliefs and aspirations (Kim et al., 2019), especially those that were aligned with their future occupational careers, and those who attend school more regularly (Ansari et al., 2020), have been found to demonstrate greater annual earnings, and enter more prestigious occupations.

The above is particularly important when considering the STEM labor force, where structural constraints and personal agency are key correlates. Reflecting the above, Eccles and Wang (2016) found that gender differences in STEM career choices were accounted more when conditioning on students' motivational beliefs and values (e.g., self-concepts, interests) than academic abilities alone. However, even the most highly motivated students may face barriers to educational attainment (and therefore barriers to improved labor market outcomes) due to discrimination. For example, Francis, de Oliveira, and Dimmitt (2019) found that school counselors are less likely to recommend high-achieving Black female students for advanced placement calculus.

Although general academic skills and good performance in school are important, the ability to get along with others, work in teams, self-regulate, show up every day on time, and bring positive mental health to the workplace are equally important, if not more so. Social-emotional competence is regularly cited as a high priority for employers. These skills are strongly predicted from childhood peer relations, social-cognitive skills, and attitudes.

Jones, Greenberg, and Crowley (2015) found that an 8-item teacher rating of social competence in kindergarten is a strong predictor of adult labor market outcomes, including stable and full-time employment, even when confounding variables (such as early life socioeconomic status) are controlled. Examples of these items include "cooperates with peers without prompting," "is helpful to others," "very good at understanding feelings," and "resolves problems on own." This study joins a growing body of evidence that early social-emotional skills and adaptation are stronger predictors of labor market outcomes than are academic skills and performance.

Early intervention in children's skill development can have long-term impact on adult employment and well-being outcomes. Sorenson, Dodge, and the Conduct Problems Prevention Research Group (2016) found that random assignment to a comprehensive skill development intervention was associated with less adult criminality, better mental health, better work outcomes, and better adult family well-being. Furthermore, these outcomes were mediated by students' improvements in social-emotional competence; in contrast, improvements in academic skills had relatively little impact on adult outcomes.

Out-of-school time represents a substantial proportion of children's lives (Vandell, Larson, Mahoney, & Watts, 2015). During this time, students can participate in 5-day-a-week after-school programs at schools and community-based organizations, attend extracurricular activities such as sports, music, and clubs that

typically have a specific content focus, work at part-time jobs, and attend religious activities. There is a substantial research literature documenting the positive effects of these different types of out-of-school contexts (their timing, duration, and quality) on academic skills and performance (Lawrence, Hinga, Mahoney, & Vandell, 2015), on social-emotional outcomes such as work habits, persistence, and emotional well-being, and on adult workforce and educational outcomes (Vandell, 2013). In addition, there is good evidence documenting the academic and social risks for children and adolescents when they spend substantial time in unsupervised settings with peers, particularly when those peers are deviant (Dishion & Tipsord, 2011). The panel recommends that the NLSY26 include measures of unsupervised time with peers, engagement with social media and other technology afterschool, as well as youth participation in afterschool programs, extracurricular activities, and summer enrichment activities.

Foundational findings that are particularly important for understanding labor market outcomes include studies of career preparation topics such as vocational training and trade certificates, college prep courses, and advanced curricula, especially in STEM fields. Prior NLSY protocols have gathered a wide range of these measures, many of which are still relevant. Pertinent measures include details of educational experience such as attendance at specific secondary schools and during what period, course completion, grades, attendance at specific tertiary education institutions and during what period, and degrees or certificates earned.

Recent emphasis on vocational and technical education (Brunner, Dougherty, & Ross, 2019), on earning college credits in high school (An, 2013), on remedial or development course placement in college (Bettinger & Long, 2007), on the returns to college majors (Bleemer & Mehta, 2022), and on certificate completion (Xu & Trimble, 2014) suggest the benefits of collecting information on these measures of educational attainment.

In addition to the more traditional forms of schooling, students are increasingly gaining skills from alternative experiences even though the research base is still thin. As a result, the survey should collect information on homeschooling, which rose during the pandemic (Eggleston & Fields, 2021), as well as skill development experiences such as coding boot camps and micro-credentials (Perna, 2021).

Financial health is a second area of outcomes worth additional measurement, including both financial health during schooling and immediately after. The salience of debt for college students and the potential effect of debt on life choices (Rothstein & Rouse, 2011) points to the importance of collecting information on student loans and other borrowing; while the evident financial struggles of many students point to the importance of asking about access to food, housing and medical care (Blagg et al., 2017).

Also of interest is civic participation, including contribution to a well-functioning democracy and supporting one's local community. Heightened current discord, distrust of government, and the potential erosion of democracy (Quraishi, 2021) suggest the importance of measuring these outcomes, including where and how individuals gather information. Instruments are available to measure democratic values, norms and participation (e.g., https://www.ets.org/s/heighten/pdf/heighten_cce_test_at_a_glance.pdf).

In contrast to these prosocial behaviors, antisocial behaviors are also worth studying. NLSY has collected many of these in the past that are worth repeating on "crime, delinquency, and antisocial behaviors" (https://www.nlsinfo.org/content/cohorts/nlsy79-children/topical-guide/crime/crime-delinquency-antisocial-behavior; https://www.nlsinfo.org/content/cohorts/nlsy97/topical-guide/crime). Given the emergence of social media and the effects of social media on outcomes, the next surveys could add measures related to internet addiction and antisocial internet behaviors (Ma, 2011).

Finally, a number of existing measures can capture students' mental health and distress, including, for example among others, the Youth Outcomes Questionnaire (https://www.oqmeasures.com/y-oq-sr-2-0/).

Related foundational data important for studying other later life outcomes

There is strong theoretical and empirical evidence to support the notion that individuals' academic abilities and attitudes early in the life matter for a wide variety of later life outcomes (Alexander et al., 1994; Heckman et al., 2006) beyond educational attainment, including health, family formation, crime, economic burden on society, and overall well-being. Reflecting the above, prior studies with the NLSY have shown that students' math and reading test scores in middle childhood and adolescence are strong correlates of educational attainment, including students' probability of graduating high school and enrolling in college (Magnuson et al., 2016). Likewise, students' attitudes and expectations (Cho-Baker & Purtell, 2021; Susperreguy et al., 2018), school attendance (Ansari et al., 2020), and relationships with teachers (Ansari et al., 2020) are correlated with their long-term school success, including with individuals' pursuit of postsecondary education.

When considering other life outcomes, academic skills in adolescence (Borghans et al., 2016), educational beliefs and attitudes (Martin & Gardner, 2016), and school attendance (Ansari et al., 2020) have also been linked with other indicators that reflect a successful transition to adulthood, including long-term socioeconomic status, physical health, mental health, and civic engagement. Collectively, these foundational data reflect the long arm of childhood and underscore the importance of assessing a wide range of academic skills and attitudes.

Beyond academic skills, Jones, Greenberg, and Crowley (2015) found that an 8-item teacher rating of social competence in kindergarten is a strong predictor of adult health and well-being, including substance use, criminal activity, and mental health (in addition to the finding of predicting labor market outcomes (see page 8)). Odgers and colleagues (2007) found that childhood conduct problems as reported by parents and teachers strongly predict adult health burden at age 32, and Rivenbark and colleagues (2018) found that children with conduct problems account for a disproportionate amount of societal health and welfare costs in adulthood. Additionally, Dodge and colleagues (2022) found that directly-assessed measures of social information processing during middle childhood are strong predictors of employment, criminality, and well-being in adulthood.

Exclusionary disciplinary practices, especially those that involve police interaction, have also been shown to have negative effects on later life outcomes such as attachment to the labor market and likelihood of arrest and incarceration. Data on student experiences with these disciplinary practices would be foundational for studying later life outcomes.

Key areas of disparities and inequalities that should be measurable

Disparities in academic skills related to income and race that emerge in early childhood and persist to influence labor market outcomes throughout the life course are egregious and must be eliminated (Reardon, 2011). Gaps in attitudes and motivation across racial/ethnic groups and across genders are also of note and should be measurable when trying to address issues of representation in the workforce and labor market outcomes (Eccles & Wang, 2016). Thus, it is important to collect information on a broad range of academic skills and attitudes. At the same time, however, it is important to shift the focus from achievement gaps to gaps in opportunity. Consequently, the causes of disparities should also be measured,

including the institutional mechanisms in early life experiences that prevent marginalized groups and women from reaching their full potential. Information about disparities is best measured by starting a cohort in early life. The most valid measurement of relevant life experiences occurs contemporaneously, which would imply starting a cohort at birth and collecting information about relevant life experiences annually. The obvious tradeoffs with the long time period until adulthood suggest a compromise of starting at a later age and collecting retrospective recall of earlier life events. This decision would come at a cost of less accuracy of recall as the time period from occurrence to recall lengthens. The panel considered these tradeoffs at great length and reached a consensus compromise of recommending starting at age 6 with a long interview of the parent about the child's first six year of life, followed by annual or bi-annual interviews. The panel concluded that starting at age 12 would mean the recall period of up to 12 years would lead to inaccurate information.

Being born into low socioeconomic circumstances is associated with fewer opportunities for guided social-emotional learning. Measuring family education, income, and wealth are essential to understanding the development of social competence. Experiencing racial discrimination presents an additional barrier to educational attainment that non-marginalized students do not face. Discrimination can occur in academic tracking and course placement, in differential disciplinary treatment at school, and in other aspects of a student's educational experiences that serve as an additional barrier to academic achievement regardless of a student's attitude or level of motivation.

Differential discipline experienced by students from different racial, ethnic, and socioeconomic backgrounds can contribute to inequalities in academic and life outcomes. Research demonstrates that Black students, for example, are more likely to be perceived as disrespectful or disruptive than White students who exhibit similar behavior (Okonofua & Eberhardt, 2015). Recommended measurements to capture these potential disparities include going beyond collecting numbers of disciplinary referrals to capturing the reasons for the disciplinary referrals.

Policymakers have given increased attention to differential access to advanced curricula by race, ethnicity, and socioeconomic status. High school students in New York City sued to end the district's gifted and talented program in 2021 on the grounds that it is exclusionary and discriminatory (Shapiro, 2021). Although the suit was dismissed on the grounds that the legislature should take up the issue and not the courts, this points to a growing concern by parents and students that gifted programs and AP courses create a dual/segregated school system where minority and low-income students are often excluded from the most enriched educational experiences (Francis & Darity, 2021). Beyond collecting measures of participation in these programs and courses, it would be important to know if a student was encouraged or discouraged from taking AP courses by any teachers or counselors. Also, if students were eligible but chose not to take an AP course, why not? Did they think they would not succeed academically; did they think it would be a socially isolating experience?

Historically, access to and participation in afterschool programs and extracurricular activities was much higher for children from higher income families because these activities were funded by fees paid by parents (Duncan & Murnane, 2011). With the expanded public funding of afterschool summer programs, it is important to determine (1) if participation in these programs by low-income youths and minoritized youths is increasing, (2) if this participation is linked to gains in academic and social-emotional well-being among these youths, and (3) if unsupervised time with peers is decreasing along with declines in problem behaviors.

Inequalities in educational outcomes persist and have, in some cases, expanded. Inequalities by race, ethnicity, gender, and family income continue to be salient. Inequalities persist between White and both Black and Native American students in many indicators of well-being. Availability of opportunities in schools or neighborhoods explain some but not all of these inequalities. Issues of access that reflect

differences in guidance and choice for students in the same schools are also key determinants. Further evidence has also shown clear inequalities across geographic areas (https://opportunityinsights.org/atlasresources/) and between rural areas and more urban environments, particularly in the information available for students (Hoxby & Avery, 2012).

Survey Design-Related Recommendations for the New Cohort

Degree of inclusion of recommended topics in NLSY79 and NLSY97

The table below lists measurement domains, inclusion in past NLSY surveys, and recommendation notes.

EXHIBIT 1

Domain	Included NLSY79?	Included NLSY97?	Priority	Source
Academic skills				
Directly measured skills	X	X	H	Need new measures. Consider sub-scales of intelligence tests, vocabulary, mathematics, short-term memory, and problem-solving
Grades from school records	X	X	H	Get records
Grades from self-report	X	X	M/L	
Achievement test scores	X	X	H	Annual end-of-course scores
SAT/ACT scores	X	X	H	
STEM	X	X	M	Get grades in specific courses
School attendance	X	X	M	School records
Work habits		X	M	Need more detail; time-use survey
Social-emotional skills				
Directly measured and other reported skills	X	X	H	Need discrete skills, more direct measurement, such as self- and other-emotion recognition, intention cue detection, social problem-solving, delay of gratification, delay

				discounting, and social decision-making.
Self-regulation	X	X	H	Need direct test of self-control.
Parent report of child competence			H	Use standard instrument
Peer assessment of child relations			L	Valuable but not feasible
Teacher report of child competence			M	Valuable and feasible
School discipline records	X	X	H	
STEM attitudes and aspirations	X		H	Need new instrument
Educational aspirations	X		H	Need new instrument
Learning mindset			L	Self report possible
Social behavior (Risky behaviors, deviant behaviors, competent behaviors, and relationships)	Maybe, depending on what behaviors panel is thinking of?	x	H	Self report
Stereotype threat			L	Modest priority
In school experiences				
Career pathways	X	X	H	From records
Advanced curricula	X	X	H	From records
Perceptions of courses	X	X	M	Self report
Academic support services	X	X	M	Collect individual experience and school-level availability from school ID
Peer effects		X (ask questions about kid in R's grade)	M	Collect school-level average achievement
Harassment and bullying			H	Self report
Experiences with teachers/adults		X	H	Self report
School security/sense of safety	X	X	M	Increasing importance
Early childcare and education			H	Parent reflection
Out-of-school experiences				
Early education	X	X	H	Parent report
Dual language at home			H	Parent report
Social media experiences			H	New
Videogames	X	X	M	Self report
Afterschool and summer programs		X	H	Get more detail annually
Early life development, ACES			H	Parent report, then self report
Family composition	X	X	H	Annual
Macro events			H	From central office
Educational outcomes				
Diverse high school pathways	X	X	H	School records
Postsecondary pathways	X	X	H	Self report
Finance education	X	X	L	Self report

Civic participation	X (2008)	X	H	Self report; voting records
Mental health and substance abuse	X	X	H	Self report; collect service utilization

Many domains have been assessed in past surveys and should continue, albeit with updated instruments and more direct assessment by online tests. Four broad areas had not been emphasized in past surveys and should be considered carefully. First, social-emotional learning had been measured in only cursory ways through reports about a child's competence rather than direct testing. Given the growing importance of this domain to labor market outcomes, direct testing and reports by the self, parent, and teachers should be included. Second, children's out-of-school experiences, particularly afterschool and summer programs, had been virtually ignored in past surveys. Emerging research indicates the importance of these activities in understanding labor market outcomes. This information is important at every age. At earlier ages (ages 5-10), the information captures "latchkey" children and poor parental monitoring. At later ages (age 10 onward), this information captures pertinent learning experiences relevant to life course employment outcomes. Third, children's early life experiences had been all-but-ignored in past surveys and should be emphasized by starting cohorts at an earlier age and collecting information from parents, children, and records. Finally, administrative records should be collected as much as possible, including both individual records and records that describe school-level or neighborhood-level information. These records include birth records, annual school records, geocoded information, voting records, and criminal records. Typically, transcripts include only grades and courses taken, whereas school records also include test scores, absenteeism, and disciplinary infractions, all of which are important.

With respect to academic skills, knowledge, and attitudes, it is suggested that direct assessments of students' aptitude and achievement scores be maintained and expanded. It is also suggested that the attitudes and expectations surveys that were administered to past NLSY97 participants that are related to the foundational data discussed above also be maintained. If possible, it is recommended that transcript surveys used in NLSY97 also be included. If transcript surveys are not feasible, then requesting that students provide this information would be a potential alternative.

The NLSY97 asked students a series of questions about high school experiences including "number of times they had something of value stolen from them at school, someone threatened to hurt them, they got into a physical fight at school, or they were late for school without an excuse."[1] These questions could be updated to reflect a focus on the experiences mentioned in this report. NLSY97 students were also asked about their course of study. These questions should be maintained and updated to include the questions about AP course taking.

Students in the NLSY97 were also asked a series of questions on the "world of work" designed to measure school-based learning programs that focused on college and career prep. These questions should be maintained.

School disciplinary questions about the number of times a student has been suspended or expelled were included in both the NLSY79 and NLSY97. These questions should be maintained and expanded to include reasons for suspension or expulsion and whether a student was referred to the criminal justice system.

Both the NLYS79 and NLSY97 included measures of the out-of-school context that are relevant for the NLSY26. The NLSY79 Time Use section asked youth about time taking extra classes or lessons and time spent working. Questions about participation in community service, volunteerism, and religious services also were collected in both cohorts. Beginning with the 1988 child supplement to NLSY79, children age

10 and older were asked to enumerate the kinds of activities they engaged in after school, including activities at home, another person's home, community or sports facility, job, mall or after school facility (these questions were last asked in 2016). In all survey rounds of NLSY79 Child-Young Adult survey except 1986, children 10 and older were asked about their friendships, whether they felt lonely, and how much pressure they felt from friends to engage in anti-social behavior. The Supplement also included time playing videogames and/or watching tv, collected from both children and young adults.

NLSY97 outcomes data included information on education including (1) college experiences, (2) educational status & attainment, (3) transcript surveys, and (4) training information, all of which continue to be relevant. In terms of college experiences, it collected information about each college, such as degree sought, number of credits accumulated, characteristics of the institution; and information about each college term, such as course load, GPA, major, costs, and financial aid. College transcript data were collected in 2012-2013. It also provided information on colleges to which respondents applied. All of these measures are worth continuing. Similarly, in terms of status and attainment, NLSY97 collected information on highest grade attempted and completed, date high school diploma or GED was awarded, and date left high school. Also, it included event history variables that tell in what grade, school, type of school the respondent was enrolled for each month. Again, each of these measures is worth collecting. Although some of the information on schools may be better collected by linking to other data, high school transcripts provide information on courses taken and grades received in high school plus courses and programs offered by the high school and post-secondary transcripts. These records provide data on credits, courses, degrees awarded and other information from respondents' post-secondary enrollment, which continue to be relevant.

Information on training programs in which respondents participate age 16 and older continues to be highly relevant. Moreover, NLSY97 included information on attitudes which continue to be relevant as outcomes, including attitudes about the justice system, parents, peers, school environment, self, domains of influence, mental health, and willingness to take risks.

Methodological issues to consider on recommended topics

Despite the extensive longitudinal evidence regarding the relations between students' academic skills, attitudes, and expectations with their long-term life and occupational success, one of the shortcomings of past iterations of the NLSY has been that these constructs have not been consistently measured across developmental stages. For example, NLSY79 Children and Young Adults followed children every two years between ages 5-6 and 11-12. As another example, NLSY79 began sampling individuals between ages 14 and 22 and NLSY97 began sampling individuals between ages 12 and 17. Given models of developmental cascades (Masten & Cicchetti, 2010), which argue that early abilities and experiences lay the foundation for later abilities and experiences, and the notion that the impact of experiences in life may differ depending on the timing of the event (Elder et al., 2003), it is critical to have earlier and repeated measures of these factors to understand their impact on later life outcomes, such as education and labor market success.

Sameroff (2009)'s transactional theory of social development and related empirical findings indicate reciprocal relations between a child's behavior toward others and the environmental response to the individual. For example, a child's disruptive classroom behavior may lead to school suspension or lost learning opportunities, but these school inputs also affect the child's disruptive behavior. Disentangling these sources is important, especially in understanding selection effects versus influences and identifying disparities in experiences across racial groups that could account for disparities in outcomes.

Accordingly, data collection starting from middle childhood and proceeding through adolescence would ensure adequate predictive power in estimating the extent to which individuals' academic abilities and attitudes early in life, and how changes in these constructs over time, correlate with long-term life outcomes. More frequent assessments would also allow for more advanced statistical modeling, including the differentiation of within- and between-person effects (e.g., Bailey et al., 2018; Hamaker 2005), which is critical for tackling issues of causality with correlational data. When considering such changes, it is important to keep in mind two issues: (1) selective sorting and fatigue, whereby some students opt to not respond to direct assessments, as has been the case with prior iterations of the NLSY (missing data as high as 44%; Miller et al., 2021); and (2) assessments disentangle effects of language proficiency from content knowledge.

Observer ratings of social competence reflect both the biases of the rater and behavior of the targeted individual. Obtaining multiple sources as well as direct testing minimizes the bias.

Numerous childhood variables predict adult labor market outcomes, but these variables are inter-correlated and must be disentangled to make causal inferences. The distinction between a child's exogenous environmental experiences and that child's academic skills provides a pertinent example. A child's skill level and aspirations often account for selection into experiences (e.g., placement into an advanced placement course), but that experience could also independently influence outcomes. Measurement of both experiences and skills at multiple time points would allow for modeling of access to experiences separately from prediction of outcomes.

Collecting data on a child's experiences of harassment, bullying, and social isolation can be triggering and cause mental distress to students, leading to poorer school learning and academic performance. Again, selection into harassment needs to be disentangled from the influence of harassment on outcomes. Measurement of both experiences and skills at multiple time points enables separate modeling of each factor.

In addition to questions about participation (yes/no) in afterschool programs and extracurricular activities, it would be very useful to collect youth self-reports about the intensity (number of days each week or month) of different types of out-of-school contexts as well as the quality of relationships with adult staff, quality of relationships with peers, enjoyment of the activity, and perceived opportunities to develop skills at the activity. With respect to unsupervised time with peers, it would be helpful to collect self-reports of amount of time spent with unsupervised peers each week as well the types of interactions that occur during unsupervised time with peers.

Relevant alternative data sources to capture recommended topics

Although the most optimal method of capturing students' academic performance, beliefs, and expectations is through a combination of direct-testing and self-report, other data sources that would prove valuable include comprehensive school administrative records, including but not limited to transcripts.. These alternative data sources can provide complementary perspectives on students' academic knowledge; although the correlations among course grades and achievement test scores are strong, there is not perfect overlap. For example, prior rounds of the NLSY reveal a correlation of approximately .60 between assessments of achievement and course grades (Borghans et al., 2016). Thus, even though administrative school records are an additional source of understanding students' academic skills and performance in school, they are not a substitute for direct assessments. If administrative school records are not feasible due to data collection challenges, then requesting that students provide this information would be a potential alternative (as an example, see Vandell et al., 2016). Student reports

would be an acceptable alternative as prior work shows a correlation of roughly .80 between student reports and administrative records of school grades (Kuncel et al., 2005).

Linking the NLSY to other data sets can allow researchers access to important information that would be costly or otherwise difficult to collect. Information about a child's social competence can be obtained from administrative records from school (e.g., disciplinary infractions, special education placement for behavior disorders). Health records from Medicaid or private providers can provide information about psychiatric diagnoses and professional services received for childhood mental disorders. Juvenile court records provide information about a child's criminal outcomes in adolescence but also about the child's behavioral problems.

School records across the pre-k through grade 12 era may be more difficult to collect but would provide crucial, temporally-distinguished, information about a child's experiences and performance. It is especially important to collect school transitions and changes, grade progression, special education placement and related resources, course taking, grades, disciplinary infractions and sanctions, and standardized test scores. The course-taking behaviors evident in the transcripts would allow future researchers flexibility as the importance of certain behaviors may not be evident today. Collecting information on the specific secondary schools that respondents attended using NCES school identifiers would allow researchers to link to rich data on schools and their neighborhoods including The Common Core of Data (CCD), The Private School Survey (PSS), and The Integrated Postsecondary Education Data System (IPEDS).

The NCES Civil Rights Data Collection includes school-level variables on AP courses offered, school discipline, enrollment demographics, math and science courses, SAT and ACT taking, harassment or bullying, discipline, school staff, and school expenditures. The NCES Common Core of Data includes school-level variables on staffing, school demographic characteristics, and lunch program eligibility.

For studying life outcomes, the National Student Clearinghouse provides information of degree attainment, including certificates, as well as on the institution attended and the timing of degree attainment (Dundar & Shapiro, 2016). Linking the NSC to the NLS should be relatively straightforward.

Top Ranked Topic- and Survey Design-Related Recommendations

Prioritized recommendations

Initial discussion among panel members led to the conclusion that five domains of measurement must be included, without prioritizing one domain over another. Within each domain, measures were prioritized based on combined judgment of the centrality of a measure to the domain, prior empirical findings that the construct is predictive of adult outcomes, theoretical plausibility that the construct plays a causal role in a child's development, and a cursory benefit-cost analysis of the importance of the variable versus the time and dollar cost of data collection. Decisions were made by consensus rather than vote. Items were prioritized using a high (H), medium (M), and low (L) scale.

Academic skills
H Directly measured academic skills

H School grades in courses from records
M/L Self-report of grades
H End-of-grade and end-of-course test scores
H SAT and ACT scores
M STEM (science, technology, engineering, and mathematics) performance
M Excused and unexcused school attendance
M Work habits, amount of homework time, adult structure of homework

Social-emotional skills
H Directly measured and other-reported social cognitive skills and social information processing
H Directly measured and other-reported self-regulation and executive function
H Parent assessment of child social competence
L Peer assessment of child social competence (not likely)
M Teacher assessment of child social competence (maybe)
H School disciplinary records
H STEM attitudes and aspirations
H Educational aspirations
L Learning mindset
L Stereotype threat
H Self- report measures of social behavior (risky behaviors, bullying and victimization- in-school experiences)

In-school learning experiences
H Career pathways, including course taking, advanced curricula, vocational education, and STEM
H Experience with advanced curricula
M Perceptions of school courses and pathways as affirming or stigmatizing
M School academic support services
M Peer effects (average peer performance)
H Experiences with harassment and bullying
H Experiences with teachers and caring adults
M School security, especially sense of safety
H Early childcare and education experiences

Out-of-school learning experiences
H Early educational opportunities
H Dual language experience at home
H Social media experiences
M Videogames and related technology
H Afterschool programs and summer enrichment programs
H Early-life developmental history, including ACEs and social determinants
H Family placement and household membership across time
H Macro and community events (e.g., recession, pandemic) and individualized experience

Educational outcomes
H Diverse pathways through high school
H Diverse post-secondary pathways and credentialing
L Financing of post-secondary education
H Civic participation and public service
H Mental health (including substance abuse), well-being, and stable employment

Tradeoffs that informed the ranking of recommendations

The panel considered four major tradeoffs that informed final recommendations.

Age at enrollment

The most critical recommendation in this report considered the age at which the cohort begins participation. NLSY97 began participation at age 12 or later, with only a cursory retrospective report from the parent about the child's prior life experiences. Retrospective reports are less accurate than real-time reports (Nivison, Vandell, & Roisman, 2021). Since those cohorts were fielded, developmental theory and empirical findings including reports from brain scan measurement have emerged to assert the primary influence of early life experiences in shaping the course of a child's development and in cascading subsequent life events and outcomes. New empirical findings have emerged that emphasize the strong predictions of adult outcomes that can be made from life experiences between birth and age five, and from skills measured at elementary school entry (Duncan et al., 2007; Jones et al., 2015). This theory and these findings suggest the benefits of initiating the new cohort at a younger age.

At the other end of the age continuum, the time urgency of collecting adult labor market outcome information suggests the importance of starting a new cohort at an older age, such as 18 or 21. This decision would trade off immediate outcomes with loss of information about early life.

The tradeoffs in this decision weigh the benefits of information about early life with the delay in reporting outcomes in young adulthood. Although a great deal of new information would be gained by starting as early as birth, the urgent need to identify findings for the field suggests a later starting age. There is no single age at which a child's information becomes particularly reliable or valid. With each advancing year, important information about earlier life experiences can be recollected with less accuracy and information about skills and performance is lost.

Yet another problem comes with a study that includes only a narrow age range at enrollment (e.g., ages 12-16) because such a design confounds the influence of macro environmental events (e.g., economic recession, global pandemic, war) with cohort effects by age. These macro events have taken on more significance since the last surveys and are expected to have enduring impact.

The panel recommends a solution that attends to early-life experiences, later-adolescent priorities, and macro influences through an accelerated longitudinal study design. This design recruits multiple cohorts in year 1 that start at ages 6, 9, 12, 15, 18, and 21. Data-analytic methods could allow piecing cohorts together into a single data set with planned missing data (e.g., the youngest cohort would be delayed in collecting adult outcome variables while the oldest cohort would be missing young-age information). The widespan in ages in any calendar year would enable the disentanglement of age and cohort effects. The trade off in this scenario would be the smaller sample size for any single age cohort.

The most complete study would include large sample sizes and multiple cohorts starting at multiple ages, so that comparisons can be made across cohorts to contrast the impact of secular events versus age. Prohibitive costs and the need for rapid findings suggest compromises are required. The panel recommends an accelerated longitudinal design with more modest sample sizes within a cohort but with multiple cohorts of different starting ages. The panel concludes that near cohorts can be pooled for some analyses and that cross-cohort analyses can still have adequate statistical power.

Although strong cases could be made for using multiple age cohorts or just one age cohort, the most important recommendation is to begin at least one cohort at age 6 or younger.

Direct assessment of skills and performance versus report by others

A second question considered the direct assessment of a child's skills and performance versus reports by the self, parent, or teacher. Some variables are most validly measured by reports by self or others (e.g., a child's aggressive behavior problems and usual work habits) because they rely on perceptions by observers covering an extended period of time, whereas other variables may be subject to observer bias that reduces validity and increases seeming disparities across groups. Still another source could be administrative records of performance that had been assessed directly in school, which seems particularly useful but applicable for only a small range of constructs.

The panel considered that although the optimal measurement medium depends on the variable itself, recent advancements in online assessment suggest the positive value of direct assessment whenever possible. Skills such as reading comprehension, delay of gratification, and social problem-solving skill can be measured either during an in-person interview or remotely through online assessment.

Retrieval of administrative records is outversus self (or other) report

Some important variables (e.g., absenteeism, school grades, disciplinary events) are stored in school administrative records, but the rate of missing data for such records is usually high and the variability in the information itself can preclude uniform scoring across all participants. A tradeoff is to ask respondents to report information stored in administrative records, but the reliability and validity of such reports is lower than those in the records themselves. One solution is to attempt to collect both administrative records and respondent reports, but the cost is high in respondent time. A compromise is to attempt administrative data collection and to collect respondent reports only when the former is not possible.

Breadth versus depth of coverage of constructs

Assuming a fixed amount of respondent interview time, the panel considered the merits of deep collection of measures of academic and social-emotional skills at the cost of measurement of some aspects of life experiences. Of course, all four domains of proposed measurement (i.e., academic skills, social-emotional learning, in-school experience, out-of-school experiences) are essential, so the tradeoff is one of depth versus breadth in coverage.

One possible solution is to stagger emphasis in data collection across a child's age so that identical constructs are not measured annually but, rather, biennially, so that more constructs can be included. The disadvantage of this plan is that estimates of growth in a skill across time are less precise given a 24-month (rather than 12-month) interval between measurements. The advantages are that more constructs can be measured. One compromise is to identify constructs that are most central and to measure these constructs annually, while relegating fewer central constructs to biennial measurement.

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