High School and Beyond 2020 (HS&B:20)
Base-Year Full-Scale Study Recruitment and Field Test

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Supporting Statement Part C

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C. Content Justifications

Overview. This section contains justifications for the HS&B:20 base year field test instruments. Field test questionnaires—student, parent, administrator, teacher, and counselor—have been included in Appendix B. Questions included on the abbreviated versions of the student, parent, and teacher instruments are annotated with an asterisk (*). Questions included on the parent re-interview are annotated with a dagger (†).

All questionnaires serve to support the overall purpose of HS&B:20, which is to understand how students' backgrounds and high school experiences affect their education and life outcomes. Understanding what factors propel some students to successful completion of high school and entry into work or postsecondary education while leaving others behind is a critical function of high school longitudinal studies such as HS&B:20. As shown by HS&B:20's predecessor studies,[1] high school graduation rates and rates of entry into postsecondary education have increased substantially since 1972 (McFarland et al., 2018; Snyder, de Brey, & Dillow 2018). In that time, there also have been dramatic changes in the education landscape. The demographic makeup of recent high school cohorts is substantially more diverse than in prior decades, with the proportion of English Language Learners increasing dramatically (Bransberger & Michelau 2016; McFarland et al. 2018), for example. The nature of instruction and curricula have shifted over time as well, with greater availability of college credit-bearing coursework in high school and increasing use of technology in classrooms (College Board 2017; Office of Educational Technology 2017). Within this diversifying environment, the HS&B:20 questionnaires will provide new sources of information about how students, parents,[2] and school staff are responding to the challenges of educating today's youth and will capture the factors (e.g., experiences, behaviors, attitudes, and interactions with people) that influence students' decision-making process about high school courses, postsecondary options, and occupation goals. Finally, HS&B:20 and its predecessors offer an opportunity to study trends in students' high school experiences and education outcomes. By maintaining linkages with NCES's previous high school longitudinal studies, HS&B:20 data can be used to examine changes over time and shed light on the effects of various policies, demographic shifts, and school practices on student achievement, growth, and educational attainment.

C.1 Ninth-Grade Student Questionnaire

In addition to collecting student and parent contact information to allow for future follow up, the Student Questionnaire will collect information on a number of topics in the following five survey sections: (1) Student Background; (2) School Experiences; (3) Students' Family; (4) Guidance Students Receive and their Future Plans; and (5) Students' Attitudes and Behavior.

Questions in the Student Background section collect information about students' race and ethnicity, sex, country of birth, and native language. Equity of opportunity and achievement gaps are of keen interest to educators and researchers. Data from this section can be used to document the extent of and trends in high school opportunity, achievement, and attainment gaps based on students' demographic characteristics.

The School Experiences section collects information about students' school experiences both before high school (e.g., ever repeated a grade, math course taken in 8th grade) and at the beginning of high school. Understanding student experiences before entering 9th grade will give context to student achievement and attainment patterns in high school. Questions about students' experiences in high school include academic plans, school climate, teacher support, and use of technology. Research shows that advanced coursetaking, a rigorous math curriculum, and academic self-efficacy are associated with high school completion as well as college going and persistence (Byun et al. 2015; Kim et al. 2015). The questionnaire asks students about their current math course, the math courses they plan to take, their confidence in their math abilities, their preparedness for class, and their plans to take Advanced Placement or International Baccalaureate courses. These data will enable researchers to understand students' academic trajectories in high school. Research also shows that a positive school climate, a sense of belonging, tolerance for diversity, and supportive relationships with teachers protect

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[1] High School Longitudinal Study of 2009 (HSLS:09), Education Longitudinal Study of 2002 (ELS:02), National Education Longitudinal Study of 1988 (NELS:88), High School and Beyond (HS&B), National Longitudinal Study of the High School Class of 1972 (NLS:72).

[2] The student and parent instruments collect information on parents or guardians. In this justification, we use 'parent' to indicate parent or guardian.

students from negative events such as dropping out and help students thrive academically and socially (Berkowitz et al. 2017; O'Malley et al. 2015). Understanding these factors at the beginning of students' high school career and subsequently in the first follow-up in 12th grade will give insight into how the school environment affects student outcomes. Finally, questions about usage of technology for schoolwork outside of school and ability to connect to the internet outside of school give insight into equity of access to technology, an important topic as use of technology becomes an ever more integral part of students' academic lives.

The Family section collects data about family structure, parent employment status, parents' highest level of education, and parental expectations for students' educational attainment. Given the challenges of achieving high response rates for parent questionnaires, questions about parent employment status, educational attainment, and nativity are asked in the Student Questionnaire to supplement information received from the Parent Questionnaire. Family socioeconomic status and parental educational attainment are strongly associated with student educational outcomes (Reardon 2011), so the data collected here will ensure that these key elements of students' background are available for researchers regardless of the parent response rate. Research also shows that parents' high educational expectations and awareness of students' educational activities are associated with positive educational outcomes for students (Benner, Boyle, & Sadler 2016).

Items in the Guidance and Future Plans section ask students about academic and personal guidance they receive as well as their expectations for their future. Research shows that students' expectations for their future are highly associated with later outcomes, as is the type of guidance students receive regarding courses to take and postsecondary and career options (Pike, Hansen, & Childress 2014; Robinson & Roksa 2016). Since many of the constructs measured here will also be collected in later rounds, this section provides a baseline for analyses of change and stability in these areas and how they overlap with academic success and social development.

The Attitudes and Behavior section draws on new items from the Middle Grades Longitudinal Study of 2017-18 (MGLS:2017) to explore contemporary topics of interest to educational researchers. Among these are growth mindset, conscientious behavior, sleep patterns, and recreational technology usage. Recent research shows that having a growth mindset (i.e., believing that intelligence is malleable and influenced by effort) is strongly associated with positive student achievement, and conscientious behavior is highly correlated with motivation and GPA, among other academic factors (Claro, Paunesku, & Dweck 2016; West et al. 2016; Yeager & Dweck 2012). There is also growing concern that adolescents are not getting enough sleep and are spending too much time interacting with technology and that these factors may negatively impact students' educational achievement and well-being (Gentile et al. 2014; Perkinson-Gloor, Lemola, & Grob 2013; Short et al. 2013).

C.2 Parent Questionnaire

The Parent Questionnaire complements the Student Questionnaire by collecting data in the following six sections: (1) Student's School Experiences; (2) Family; (3) Background Information about Parent(s) and Student; (4) Guidance and Future Plans; (5) Parental Education and Employment; and (6) Home Life and Student Wellness. In addition, contact information is collected to allow for future follow up.

Parents are key sources of detailed information about students' educational background, family resources, home life, and financial and other planning for college. Research shows that the home environment and resources available to students have strong effects on students' academic development, decision making, and educational trajectories (Dufur, Parcel & Troutman 2013; Sirin 2005). The Parent Questionnaire provides the opportunity to collect a rich array of information that will help researchers understand the interplay between family dynamics and resources and student outcomes. The overarching goal of the Parent Questionnaire is to gather data that will elucidate the educational, social, and financial resources available in the home to support student's academic development and achievement. In a longitudinal context, the parent survey provides an important and rare chance to examine the stability of parental involvement in student life, alterations to family structure, changes in economic circumstance, and other home changes which can have a major impact on the psychological and material world of adolescents. The combination of longitudinal data from parents with longitudinal data from students makes for a powerful research tool to address the core education research question of how family experiences shape student outcomes.

The Parent Questionnaire begins with questions about the student's school experiences including number of schools attended, whether the student skipped or repeated grades, if the student was ever suspended or expelled, if the student had extended absences from school, and availability of digital devices in the home for

students to use for schoolwork. The next two sections collect information on family composition, siblings and their educational experiences, the race and ethnicity of parents, and language and nativity of the family. These questions are geared toward helping researchers understand equity of opportunity for students, especially for those from diverse backgrounds.

Educational guidance received at home and school, as well as parents' own educational background and educational expectations for students, are all associated with student outcomes (Björklund & Salvanes 2011). The Parent Questionnaire collects information in these areas as well as surveying the family's economic resources and plans around financing postsecondary education. Items asking about parental education, occupation, family income, and other financial questions are used to measure the family's socioeconomic status. Research shows that family socioeconomic status is strongly associated with student achievement gaps and equity of access to educational opportunity (Reardon 2011). Finally, the Parent Questionnaire asks about special education services and draws on new items from MGLS:2017 to address emerging areas of research interest including how parents regulate students' use of technology and the relationship between students' health and students' educational outcomes.

C.3 School Administrator Questionnaire

School administrators provide contextual information about their backgrounds as well as detailed information about the school context for surveyed students. The School Administrator Questionnaire collects information in six sections: (1) School and Student Characteristics; (2) Teaching Staff Characteristics; (3) School Programs and Educational Approaches; (4) School Discipline and Safety; (5) Principal Background and Experiences; and (6) School Climate.

The purpose of the HS&B:20 School Administrator Questionnaire is to support the study's main research objectives of understanding how young adults choose the pathways they do and understanding the role that high school and the high school years play in those decisions. To achieve its purpose, the School Administrator Questionnaire has been designed to provide school-level contextual data for examining and interpreting students' decision making and planning processes. Further, because HS&B:20 schools comprise a nationally representative sample, School Administrator Questionnaire data may also be used to draw a descriptive profile of American high schools with 9th grades. Data gathered in the School Administrator Questionnaire can be merged with data from the student, teacher, and counselor questionnaires and correlated with student outcomes. This link will allow researchers to determine the school structures, policies, and practices that may encourage or discourage different high school trajectories and decisions.

The first two sections of the School Administrator Questionnaire collect data on school, student, and teaching characteristics and provide essential information about the school environment, including percentage of student body who are racial or ethnic minorities, percentage who are eligible for free- or reduced-lunch, percentage who are English Language Learners, and percentage of graduates who entered in college or the labor market. These data will help support research that has shown correlations between school population characteristics and student achievement and access to educational opportunities (Wang & Eccles 2013; Wilms 2010). Additional questions about teaching staff and teacher qualifications, as well as levels of parental involvement, give insight into resources available to students at the school. The section on school programs and educational approaches includes items about the availability of advanced courses for students and whether schools offer personalized learning or competency-based education options for students. There are several items in this section that focus on technology in the school, an increasingly important topic of interest to researchers. These questions are new to the NCES high school longitudinal studies, but have been tested on other surveys such as the Middle Grades Longitudinal Study of 2017-18 (MGLS:2017), Trends in International Mathematics and Science Study (TIMMS), National Assessment of Educational Progress (NAEP), the OECD Teaching and Learning International Survey (TALIS), and International Computer and Information Literacy Study (ICILS). Technology items include expectations for teacher knowledge of and use of technology in their classrooms and the types of digital devices available for student use at the school.

The final three sections focus on school context and the principal's qualifications. Questions about school discipline and safety are timely given public and research interest in how schools ensure student safety and if disciplinary practices differ across different school populations. Items about the principal's background and experience allow researchers to make connections between school leadership and student outcomes. Finally, the questionnaire includes several items related to school climate. Research has shown that school climate is

strongly associated with student outcomes; positive climates have a beneficial impact whereas climates characterized by high incidences of violence, conflict, absenteeism, and disciplinary issues adversely affect students' academic achievement (Thapa et al. 2013; Wang & Degol 2016).

C.4 Mathematics Teacher Questionnaire

Mathematics teachers of participating students will be surveyed. The purpose of the Teacher Questionnaire is to understand the mathematics classroom and the broader school context for surveyed students. HS&B:20 will not include a nationally representative sample of teachers, so data cannot be used to generalize to mathematics teachers as a whole. Instead, data gathered from the Teacher Questionnaire can be merged with data from the student survey. This linkage of data will allow researchers to use the teacher data contextually with the student as the primary unit of analysis. The teacher survey complements the student survey by providing school context information and data about the opportunities and resources available to support students' achievement and experiences in their mathematics classes and in the school as a whole. Teachers will provide information about the students' mathematics class and the student's performance and engagement in that classroom. Mathematics achievement is highly correlated with a host of positive student outcomes, including entry to postsecondary institutions and higher earnings in the workforce (Byun et al. 2015; Kim et al. 2015). Understanding students' mathematics experiences and their teacher's educational approach will enable researchers to study a host of outcomes related to mathematics and other academic factors. The mathematics Teacher Questionnaire collects information in four sections: (1) Classroom Information; (2) Student Information; (3) Teacher Experience and Background; and (4) School Climate.

Classroom-level questions include items about the rigor of the students' mathematics course, the course curriculum, the teacher's mathematics teaching objectives, the classroom behavior of students, and the achievement level of the class. Student-level questions focus on surveyed students' demonstrated mathematics abilities and levels of engagement in the subject. Teacher background questions include items about the teacher's academic background, certification, and years of teaching. Data of this type can be used to examine such topics as equity of access to highly qualified teachers. The Teacher Questionnaire collects data at the school level around emerging research areas such as availability of digital devices at the school, how students at the school use technology for schoolwork, and the teacher's growth mindset. Finally, it asks questions about school climate and safety, giving insight into students' school environment.

C.5 Counselor Questionnaire

The counselor component is targeted to the head counselor or whomever the head counselor designates as a knowledgeable source about the questionnaire contents. The HS&B:20 base year study will provide valuable information about the counseling services available to sampled students, but it is not a study of counselors and cannot be used to generalize about counselors as a special population. It can, however, be used to generalize to the school level when the questions concern school policies and academic offerings. The purpose of the counselor survey is to provide contextual data about the characteristics and practices of the schools attended by surveyed students, as well as the type of counseling supports available to students. How students are placed into courses and the resources available to students as they plan for transitions into postsecondary education or careers are of particular interest to researchers. Research indicates that 9th grade is a critical year that lays the foundation for students' ultimate success in high school and students' ability to enter postsecondary institutions or careers of their choosing (Easton, Johnson, & Sartain 2017; Roybal, Thornton, & Usinger 2014). The School Counselor Questionnaire collects information in four sections: (1) School and Counseling Program Characteristics; (2) School Courses and Academic Programs; (3) Support Services; and (4) Graduation Requirements and Transitions after High School.

The School and Counseling Program Characteristics section collects information on the number of full-time and part-time counselors, certification of those counselors, number of students served per counselor, and goals of the counseling program. The section on school courses and academic programs includes questions about how students are placed into 9th-grade courses and how counselors assist students with the transition from 8th to 9th grade. Ensuring that all students begin 9th grade with a course sequence that will enable them to enter a postsecondary institution is a topic of interest to researchers, especially in terms of equity, and understanding how students are placed into courses will give insight into this topic. Other questions ask about the availability

of Advanced Placement and International Baccalaureate courses, as well as dual enrollment offerings, career and technical education, and online courses. Access to these types of programs can vary based on school characteristics, such as minority enrollment and students' socioeconomic status so data about these topics will be of interest to researchers.

The Support Services section includes items on supports for students who need extra assistance, the existence of enrichment programs at the school site, and dropout prevention programs. New items collect information about early warning indicator systems, which have gained widespread use in schools across the country in recent years. These systems flag students at risk of failure or dropout and data collected here will help researchers understand the effectiveness of these systems. The final section includes items about the school's graduation requirements and the supports provided for helping students prepare for transitions to postsecondary education and careers.

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