How You Behave in School Predicts Life Success Above and Beyond Family Background, Broad Traits, and Cognitive Ability

Marion Spengler
University of Tübingen

Rodica Ioana Damian
University of Houston

Brent W. Roberts
University of Tübingen and University of Illinois at Urbana-Champaign

In this study, we investigated the role of student characteristics and behaviors in a longitudinal study over a 50-year timespan (using a large U.S. representative sample of high school students). We addressed the question of whether behaviors in school have any long-lasting effects for one's later life. Specifically, we investigated the role of being a responsible student, interest in school, writing skills, and reading skills in predicting educational attainment, occupational prestige, and income 11 years (N = 81,912) and 50 years (N = 1,952) after high school. We controlled for parental socioeconomic status, IQ, and broad personality traits in all analyses. We found that student characteristics and behaviors in adolescence predicted later educational and occupational success above and beyond parental socioeconomic status, IQ, and broad personality traits. Having higher interest in school was related to higher educational attainment at years 11 and 50, higher occupational prestige at year 11, and higher income at year 50. Higher levels of being a responsible student were related to higher educational attainment and higher occupational prestige at years 11 and 50. This was the first longitudinal study to test the role of student characteristics and behaviors over and above broad personality traits. It highlights the potential importance of what students do in school and how they react to their experiences during that time. It also highlights the possibility that things that happen in specific periods of one's life may play out in ways far more significant than we expect.

Keywords: student behaviors, personality traits, educational attainment, occupational prestige, longitudinal study

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Educational researchers, political scientists, and economists are increasingly interested in the traits and skills that parents, teachers, and schools should foster in their children to enhance their children's chances of success. Most recently, Heckman (2014) emphasized that multiple social and emotional skills are important for success in life, such as persistence, grit, and impulse control. This leads to the question of how (and why) these skills and behaviors relate to important life-outcomes such as job success and health.

It is now well established that certain background and psychological factors contribute to a healthy and long life. For instance, intelligence level (IQ), socioeconomic status (SES), and certain personality traits all show replicable associations with important life outcomes (Bogg & Roberts, 2013; Damian, Su, Shanahan, Trautwein, & Roberts, 2015; Reiss, Eccles, & Nielsen, 2014; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007; Spengler et al., 2015). Given their importance to life outcomes, such as educational attainment and occupational success, the discussion has quickly turned to how these qualities can be fostered through interventions by teachers and parents (Bailey, Duncan, Odgers, & Yu, 2017). The perspective commonly espoused in these discussions is that interventions would be best targeted at more narrow, contextualized qualities, such as interests for certain topics, like math, and behaviors seen in the classroom, such as better conduct. Conversely, qualities such as cognitive ability and broad personality traits, such as conscientiousness, are seen as too broad and stable and therefore not ideal targets for change (Bailey et al., 2017). However, the emphasis on presumed changeability of the

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Marion Spengler, Hector Research Institute of Education Sciences and Psychology, University of Tübingen; Rodica Ioana Damian, Department of Psychology, University of Houston; Brent W. Roberts, Hector Research Institute of Education Sciences and Psychology, University of Tübingen, and Department of Psychology, University of Illinois at Urbana-Champaign.

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Correspondence concerning this article should be addressed to Marion Spengler, Hector Research Institute of Education Sciences and Psychology, University of Tübingen, Europastraße 6, 72072 Tübingen, Germany. E-mail: marion.spengler@uni-tuebingen.de

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narrower characteristics leads to a focus on constructs that have yet to be shown to predict life outcomes across the life course. This invites the question of whether those time-bound and context-specific behaviors play a role in success above and beyond the more typical variables examined in longitudinal prospective studies. For instance, recent work has demonstrated that certain student characteristics matter in the long term (Spengler et al., 2015). However, this work did not include personality traits as competing predictors of life outcomes. Therefore, one possibility is that student characteristics are simply concrete manifestations of personality traits and if combined with typical personality measures would no longer predict life outcomes. In this study, we tested whether behaviors and attitudes specific to the school context and the period of adolescence were relevant for later life outcomes over and above IQ, SES, and most importantly broad personality traits.

How Do Student Characteristics Differ From Personality Traits?

Personality traits and student characteristics can both be considered part of the domain of personality. Prototypical student characteristics include factors such as self-concept of ability, self-efficacy, academic persistence, test anxiety, and interest in school and specific school topics. The narrower constructs that emerge out of contextualized assessment systems are typically thought of as social–cognitive or motivational constructs (see Rieger et al., 2017). Traits, in contrast encompass constructs like conscientiousness and grit, and are presumed to be more stable and lead to a consistent response and behavior across different situations (e.g., Mischel, 2004). Social–cognitive constructs are presumed to be less stable and are often constrained to specific contexts, such as school or even a topic within school (e.g., math self-efficacy).

How would behaviors specific to a context or a time of life relate to personality traits and to long-term outcomes? One reasonable perspective would be that student behaviors and attitudes are simply narrower manifestations of broader personality traits. From this perspective student behaviors and attitudes should have relatively strong relations to personality traits and potentially not provide any incremental predictive validity once personality traits have been considered. Presumably, the predictive superiority of broad personality traits would derive from the fact that they provide a more reliable and broader assessment of the underlying cause of the outcome (e.g., Funder, 2009). The potential superiority of broad personality traits might also be driven by the bandwidth-fidelity trade-off (Kuncel, Hezlett, & Ones, 2004). According to the bandwidth-fidelity trade-off, broad outcomes are best predicted by broad predictors. Outcomes such as educational and occupational attainment, which are used in the current research, are clearly broad and demonstrate equifinility (Pine & Fox, 2015) such that many different factors contribute to something like success in the labor market.

Alternatively, behaviors and attitudes specific to a time and place in a person's life might have a unique relation to outcomes independent of broader constructs like personality traits. This hypothesis emerges from two perspectives. First, past research has shown that more differentiated assessments of personality traits provide an improvement when predicting specific behavioral outcomes (Ashton, Jackson, Paunonen, Helmes, & Rothstein, 1995; Paunonen & Ashton, 2001). In this case, facets of broad personality traits would provide more information and better predictive validity. Of course, in most cases, this argument has been made in relation to predicting specific behaviors, which would match well with the flip side of the bandwidth-fidelity trade-off, which is that specific predictors should do better at predicting specific outcomes (Roberts & Donahue, 1994).

A second potential reason for the potential for specific, social–cognitive factors to predict long-term outcomes pertains to their developmental importance. It may be that specific behaviors exhibited at specific times in the life course may pay disproportionate dividends later in life. For example, in countries where entry to college is driven largely by a single test (e.g., the Abitur in Germany), the behaviors and attitudes leading to that test may have disproportionate effects on a person's long term success separate from how conscientious a student may be overall. In one of the few empirical examples of this idea, Hill, Jackson, Roberts, Lapsley, and Brandenberger (2011) found that goal development that occurred in college predicted well-being in midlife above and beyond goal changes that occurred after graduating from college. Similarly, from a developmental perspective, very time-bound, specific acts could have long-term consequence for a person's life (Hill et al., 2011).

In past research, student attitudes and behaviors, such as attitudes toward teachers, pessimism about school, and being a responsible student were found to predict occupational attainment, mortality, and even health (Spengler et al., 2015; Spengler, Roberts, Lüdtke, Martin, & Brunner, 2016a; Spengler, Roberts, Lüdtke, Martin, & Brunner, 2016b). While this past research illustrated that student behaviors could predict long-term outcomes, it did not include typical measures of personality traits and, therefore, the relation and role of broad personality traits is unknown. It is possible that once the effect of personality traits is considered, the relation between these specific attitudes and behaviors would drop out or be significantly reduced.

To test whether time and context specific behaviors and characteristics matter in the long-term we pitted them against more prototypical measures of broad personality traits. Specifically, we considered both their relation to personality traits and whether they predicted long-term outcomes over and above these traits. Therefore, the current research provides a more rigorous test of the importance of time- and context-specific behaviors and characteristics than any prior research.

Theoretical Models of Short- and Long-Term Life Outcomes

To better understand the effects of traits and characteristics and behaviors on life outcomes we considered two different theoretical perspectives. In sociological approaches, the main focus has been on human (i.e., capital), and the effects of social (i.e., parental SES) resources on students' academic achievement, educational attainment, and occupational success (e.g., Boudon, 1974; Coleman, 1988). Psychological approaches add individual difference variables, such as general cognitive ability, motivational variables, and personality to the prediction of educational and occupational outcomes, and they test the incremental validity of these factors over and above SES. We present two models that provide a broad and integrative view on the relation of the different sets of predictors: (a) the Wisconsin model (Sewell, Haller, & Portes, 1969), and

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(b) the Credé and Kuncel model of academic performance (Credé & Kuncel, 2008).

The Wisconsin model (of status attainment) is a psychological model that describes how parental SES is linked to occupational outcomes via academic performance, aspirations, educational attainment, the role of significant others, and general cognitive ability (Sewell et al., 1969). One assumption of the Wisconsin model deals with the fact that aspirations, educational attainment, and general cognitive ability have direct effects on later occupational outcomes such as status. However, the Wisconsin model fails to include other psychological dimensions such as personality traits or student characteristics, behaviors, and attitudes.

More recently, Credé and Kuncel (2008) introduced a model that builds on the Wisconsin model by incorporating a variety of predictors of academic performance. Credé and Kuncel introduced student characteristics as important predictors of academic achievement in addition to motivation, personality, prior and actual knowledge, and general cognitive ability. Furthermore, they described three broad domains (skills, attitudes, and study habits) that encompass student characteristics. The Credé and Kuncel model, although more inclusive with regard to possible predictors, is not as encompassing in its scope with regard to the outcomes, such as educational and occupational attainment. Although their model did not include occupational attainment as an outcome, it is reasonable to assume that the predictors that are relevant for educational attainment would also be relevant for occupational attainment, given that education is one of the strongest predictors of career success (see, for instance, Spengler et al., 2015).

Each of these theories provides different sets of predictors, and also focuses on different developmental periods and outcomes across the life span. Taken together cognitive predictors and family background should have their largest influence on early adulthood educational attainment. Less is known about the long-term predictors of occupational success, but prior work in personality psychology has focused on personality traits (e.g., Roberts et al., 2007) and childhood characteristics (Spengler et al., 2015) as potential predictors of success throughout adulthood. Furthermore, psychological models, like Credé and Kuncel's hold that both general cognitive ability and personality are largely independent of family background in their influences on occupational outcomes. Therefore, we expect personality-related variables such as student characteristics and general cognitive ability to play multiple roles in both educational attainment, which occurs primarily in young adulthood, and in occupational attainment across the life course. Inspired by the different theoretical approaches we adapted a comprehensive set of factors that should predict outcomes both in the short and long run.

Studies on Long-Term Outcomes

In recent decades, researchers have investigated a broad array of determinants of educational and occupational success. Previous studies have focused on cognitive predictors such as intelligence and found that intelligence was a significant predictor of educational and occupational outcomes (Gottfredson, 2002; Heckman, 2006; Kuncel et al., 2004; Schmidt & Hunter, 2004). Other studies have found that SES was significantly related to occupational success (Bradley & Corwyn, 2002; Caro, Cortina, & Eccles, 2015; Heckman, Stixrud, & Urzua, 2006; Schnabel, Alfeld, Eccles, Köller, & Baumert, 2002).

In the last two decades, large-scale reviews have also examined the role of personality traits in educational and occupational attainment (e.g., Hough, 1992; O'Connor, & Paunonen, 2007; Roberts et al., 2007; Trapmann et al., 2007). For example, Poropat (2009) provided a meta-analysis on the relation between the Five Factors of personality and academic outcomes (i.e., grades), encompassing mainly studies from secondary and tertiary levels of education. He reported that Agreeableness, Openness, and Conscientiousness were positively associated with academic performance.

Broad personality traits have also been shown to have meaningful effects on work outcomes such as income, and occupational prestige, even after controlling for SES and intelligence (e.g., Noftle & Robins, 2007; Sutin, Costa, Miech, & Eaton, 2009). When personality traits were assessed in childhood, they predicted work competence in adulthood (Shiner, & Caspi, 2003). After controlling for gender, academic competence, and childhood IQ, academic Conscientiousness and Agreeableness still had small but significant effects on academic attainment and work competence 20 years later. Personality traits assessed in adolescence were also related to occupational outcomes. For instance, Extraversion, Neuroticism, Conscientiousness, and Agreeableness were related to occupational status over a time span of 46 years (Judge, Higgins, Thoresen, & Barrick, 1999). Another line of studies investigated the association of personality traits and income (see Sutin et al., 2009). In their study, Sutin and colleagues reported that increases in income across 10 years were best predicted by Extraversion. Other studies showed that Conscientiousness was associated with income levels (Roberts, Jackson, Duckworth, & Von Culin, 2011). Moreover, studies found that Agreeableness was negatively related to income (Judge, Livingston, & Hurst, 2012; Rode, Arthaud-Day, Mooney, Near, & Baldwin, 2008). A meta-analysis of the predictors of career success showed that all five broad personality traits were related to occupational attainment and that the influence of personality traits was comparable to the effects of IQ and SES (see Roberts et al., 2007).

In contrast, there has been little research on the influences of childhood characteristics on later educational and occupational attainment. In the Jyväskylä Longitudinal Study of Personality and Social Development (Viinikainen, Kokko, Pulkkinen, & Pehkonen, 2010) four dimensions of childhood school-related characteristics were assessed via teacher ratings and peer nominations: Constructiveness (active and well-controlled social behavior), inattentiveness, extraversion, and aggression assessed in childhood (age 8) were positively associated with income in adulthood (age 43). Results remained even after controlling for education, sex, and work-related information.

In a study that investigated the influence of school behaviors (work habits, social skills, and behaviors), cognitive abilities, and family background on educational attainment and income (Lleras, 2008), a cohort of 10th graders was assessed. Work habits, participation in extracurricular activities, and social skills predicted educational attainment and income 10 years later after controlling for general cognitive abilities.

Moreover, Spengler and colleagues (2015) investigated the association of student behaviors and characteristics with educational and occupational outcomes in Luxembourg and found teacher-rated studiousness and self-reported responsible student scale to be predictive for prestige even after controlling for IQ, parental SES,

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and educational attainment. In the Luxembourg study they were not able to control for broad personality traits so the question of the incremental validity of those scales remained open.

Taken together, existing research has indicated that a variety of childhood characteristics are related to adult attainment, though few studies have focused on school-related behaviors. The results of the existing studies indicate that childhood characteristics have a small effect on different outcomes across the life span that is incremental to factors like family background and cognitive ability. However, no research to date has linked school-related behaviors to educational and occupational outcomes across a long period of the adult life while controlling for broad personality traits.

The Present Investigation

In the present study, we addressed the question of whether behaviors in school have any long-lasting effect for one's later life. We drew inspiration from a synthesis of the broad theoretical perspectives reflected in social–cognitive and trait models of personality, combined with the models of achievement outcomes reflected in the Wisconsin Model and the Crede and Kuncel model of academic performance. In particular, like the Wisconsin model, we see family background and cognitive ability as two primary contributors to achievement outcomes across the life course. Inspired from the personality trait research, we believe it is warranted to include broad personality traits in addition to family background and cognitive ability as independent contributors to life course achievement. Finally, we include school behaviors as an additional predictor of life course outcomes. First, one strong question would be whether student behaviors and attitudes are simply synonymous with personality traits. Second, do student behaviors and attitudes predict life span outcomes above and beyond family background, cognitive ability, and personality traits?

We had a rare database to test these assumptions, the Project Talent study (see Wise, McLaughlin, & Steel, 1979). Project Talent provides data on student behaviors and characteristics in addition to broad traits of the students, including personality traits and cognitive abilities. Project Talent also provides a wealth of demographic information, including parental SES, in a large nationally representative sample, and it measures outcomes over the entire life span. Thus, this is an ideal sample for testing the role of student behaviors and characteristics over and above other factors in predicting outcomes over the life span.

Method

We used archival data that has been collected by the American Institutes for Research, a nonprofit, nonpartisan research institute, and several other organizations, including the University of Pittsburgh, through a Cooperative Agreement. It was funded by the United States Office of Education. The present investigation was exempt from Institutional Review Board (IRB) approval (IRB protocol number #18310; title of study: "Project Talent Personality Project") by the IRB of the University of Illinois at Urbana-Champaign because our investigation involved the analysis of existing data and because the data is publicly available. The original study has been assessed for purposes other than this investigation; therefore, this research question is strictly retrospective.

Participants

The present investigation used data from the Project Talent study[1] (see Flanagan, Dailey, Shaycoft, Gorham, Orr, & Goldberg, 1960; Wise et al., 1979), a national longitudinal study developed by the American Institutes for Research. The first wave of this survey took place in 1960 when a representative sample of U.S. high school students (5%) was assessed. Initially, over 440,000 students (Grade 9 to 12) participated, out of which data of about 377,000 participants are now available for the first measurement occasion. Of those 377,016 participants 346,660 were coded as "credible" and, thus, used in all our analyses. After the initial testing, all participants or a subset of participants were recontacted via mail four times: 1, 5, 11, and 50 years after the original survey. At baseline the participants were on average 16 years old (M = 15.79; SD = 1.25; age range = 12–20).

In the present study, we were interested in the role of student characteristics on later success (educational attainment, annual income, and occupational prestige) while controlling for personality traits, cognitive abilities, and parental SES. Thus, we were interested in the most recent follow-ups to ensure that the participants had as much time as possible to complete their education and get jobs. Moreover, we were interested in whether the effects changed because of the timespan between the assessment of the predictors and the criterion. It might be that participants did not reach their full potential and highest possible job and income-level 11 years after their high school graduation. Therefore, we used data from the original study, the 11-year follow-up, and the 50-year follow-up. To simplify the communication of the results we

[1] There are several published articles that used data from this study. Previous work can be found at this link: http://www.projecttalent.org/about/biblio.

More recent research includes the studies that mainly used the personality data (PTPI) from Project Talent:

1. Damian, R. I., Spengler, M., & Roberts, B. W. (2017). Whose job will be taken over by a computer? The role of personality in predicting job computerizability over the life span. *European Journal of Personality*, *31*, 291–310. http://dx.doi.org/10.1002/per.2103

2. Damian, R. I., & Roberts, B. W. (2015). The associations of birth order with personality and intelligence in a representative sample of U.S. high school students. *Journal of Research in Personality*, *58*, 96–105. http://dx.doi.org/10.1016/j.jrp.2015.05.005

3. Damian, R. I., Su, R., Shanahan, M., Trautwein, U., & Roberts, B. W. (2015). Can personality traits and intelligence compensate for background disadvantage? Predicting status attainment in adulthood. *Journal of Personality and Social Psychology*, *109*, 473–489. http://dx.doi.org/10.1037/pspp0000024

4. Major, J. T., Johnson, W., & Deary, I. J. (2014). Linear and nonlinear associations between general intelligence and personality in Project TALENT. *Journal of Personality and Social Psychology*, *106*, 638–654. http://dx.doi.org/10.1037/a0035815

However, no previous work used the same variables that we used in the present article.

To our knowledge this is the first study that used the student characteristics measure. Furthermore, no published work (using data from the Project Talent study) has addressed the same research question.

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refer to the original survey as Time 1, to the 11-year follow-up as Time 2, and to the 50-year follow-up as Time 3.

The response rate for the year 11 follow-up was about 24% (N = 81,912). Participants in the 50th year follow-up were selected using the following procedures: A pilot subsample of 4,879 participants was randomly selected from a 10% random subsample of the schools that originally participated. Then, the project team used a wide variety of tracking methods (see Stone, Scott, Battle, & Maher, 2014) to locate 84.8% of the random pilot subsample. Survey materials were mailed to the presumably surviving subjects whose address had been identified. About 56% responded to the survey and were included in the final dataset of the 50th year follow-up (N = 1,952).

Measures

The students' personality traits, cognitive abilities, parental SES, and demographics (gender, race, and high school cohort) were assessed at Time 1. The students' educational attainment, annual income, and occupational prestige were assessed at Times 2 and 3. Below we describe each of the measures used in the present study, the original coding procedures, as well as transformations that were performed.

Student attitudes and behaviors. The students completed the Student Information Blank (SIB) that included a set of items concerning their feelings, thoughts, habits, and self-perceived skills with regard to their school lives. The items covered study habits and attitudes (e.g., "Keep up to date and do work every day"), self-perceived writing skills (e.g., "Difficulty expressing self in reports exams assignments"), and self-perceived reading skills (e.g., "Easily distracted when reading"). Overall, there were 26 items with a 5-point scale answering format (*almost always* to *almost never*).

Personality traits. The Project Talent Personality Inventory (PTPI) included 108 items from which 10 different scale composites were scored and recorded. Each item was answered on a 5-point scale (*extremely well* to *not very well*). Item-level data are unfortunately not available to researchers today for the entire sample (only for 4% of the sample), which is why we relied on the scale scores computed by the Project Talent staff. In the present study, we used the two higher order factors of the original 10 PTPI scales following earlier publications on the PTPI (see Damian & Roberts, 2015; Damian et al., 2015). The original 10 PTPI scales showed high intercorrelations that increases multicollinearity in the analyses. Therefore, we factor analyzed the 10 scales using principal axis factoring with a varimax rotation. Two factors were obtained: Maturity and Extraversion. We used those two factors to control for broad personality traits in our analyses.

Cognitive abilities. The original survey of Project Talent contains a variety of scales that represent different content domains of cognitive abilities such as quantitative, verbal, and visualization and spatial abilities. As indicated by earlier research (e.g., Damian et al., 2015; Su, 2012; Wai, Lubinski, & Benbow, 2009) and the radex model of cognitive ability, we developed composite measures for three abilities: mathematical, spatial, and verbal. The verbal ability composite (α = .88) consists of three scales: Reading Comprehension, English Composite, and Vocabulary. The math ability composite (α = .87) consists of four scales: Introductory Mathematics, Arithmetic Reasoning, Advanced Mathematics, and Mathematics Information. The spatial ability composite (α = .80) consists of four scales: Three-Dimensional Spatial Visualization, Two-Dimensional Spatial Visualization, Abstract Reasoning, and Mechanical Reasoning. The composites were constructed by using unit weights to balance the different ability scales. In a first step, the 11 component scales were z-scored and then averaged with equal weights within each of the three domains. Finally, we computed an overall cognitive ability index that was obtained by averaging the standardized scores of the other three indices and was used in all analyses. The cognitive ability index was standardized before the analyses.

Parental SES. The original Project Talent SES composite included answers to nine questions regarding home value, family income, number of books in the house, number of appliances, access to media, availability of a private room for the child, father's job status, father's education, and mother's education (α = .69; Wise et al., 1979). These indicators were frequently used in earlier research on SES (Galobardes, Shaw, Lawlor, Lynch, & Davey Smith, 2006). The index scores were standardized before the analyses.

Demographic measures. We included three demographic measures in the analyses, because there are well documented effects of these variables on career success outcomes: gender, race/ethnicity, and age cohort. These variables were available from the Project Talent at Time 1. Race/ethnicity[2]) was coded using a 1 to 9 scale (the labels at the time were 1 = White/Caucasian, 2 = Black/African American, 3 = Asian American, 4 = Native American, 5 = Mexican American, 6 = Puerto Rican American, 7 = Eskimo, 8 = Cuban, 9 = Unknown). We recoded the responses using White/Caucasians (coded as 2) and all others (coded as 1). Gender was coded as male = 1, female = 2. Cohort represents the grade (9th, 10th, 11th, or 12th) that participants were in at Time 1. It was coded as a numeric variable ranging from 9 to 12, with a larger number standing for an older cohort. Cohort is an important variable to take into account because all participants took the same tests at Time 1 even though they belonged to different age groups; thus, cognitive ability test scores were biased by age, with the older students scoring higher on average.

Educational attainment. Educational attainment captured the highest level of achieved education, and it was measured at both Time 2 and 3 follow-ups. At Time 2, the scale originally used had 12 points. To balance out the original coding, Damian et al. (2015) recoded it to a 6-point scale, where each point represents about 2 years of additional education. At Time 3, the original scale had 9 points. To make this scale similar to the one at Time 2, we again recoded it into a 6-point scale, where each scale point represented about two additional years of education. Thus, the new scale was the same across the two follow-ups and contained six categories with 1 = high school dropout, 2 = high school graduate, no college, 3 = high school graduate, some college, 4 = college degree, 5 = master's degree, and 6 = PhD. The correlation between year 11 and year 50 educational attainment was r = .81.

Annual income. At Time 2, participants reported their rate of pay per month, per week, or per hour. Their responses were coded

[2] Because of a clerical mistake, race/ethnicity data were not collected at baseline, but were recovered at the 5th year follow-up for about 50% of the sample at baseline.

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by the Project Talent staff to estimated annual income (see Wise et al., 1979). These scores were converted into the natural logarithm of annual income, which is a strategy often used to normalize the highly skewed distribution of income.

To measure income, at Time 3, participants were asked about their total household income in 2010. The participants had to answer on a 5-point ordinal scale ("Less than $10,000," "$10,000 to $49,999," "$50,000 to $99,999," "$100,000 to $149,999," and "$150,000 or more"). The household income measure is not ideal because they did not ask for the individual income levels of the participants. As the individual level measure was missing, we used household income as a proxy for financial success. The correlation between year 11 and year 50 incomes was $r = .22$.

Occupational prestige. Occupational prestige reflects the social status of a specific occupation, as seen by members of a society (Hauser & Warren, 1997). Both Time 2 and 3 follow-ups included self-reported job titles. These job titles were transformed into prestige scores. At the year 11 follow-up, TSEI2 score were previously assigned to the job titles by Su (2012), following the coding scheme provided by Stevens and Featherman (1981), which is a widely used measure of prestige based on educational level requirement and the social standing of each job, and these scores have been used in previous research (see Damian et al., 2015). However, because the classification of occupations has changed since the 1970s, and because we wanted to use two comparable measurements at both follow-ups, we recoded the Time 2 job titles into occupational prestige scores using a newer occupational classification system and we used that same method at Time 3. At Time 2, the correlation between the two occupational prestige scores drawn from the two different occupational classification systems was .79, indicating that the new scores we obtained were valid measures of occupational prestige.

The newer occupational classification system, based on which we obtained the occupational prestige scores used for the present analyses was developed in 2010 and it is the Occupational Information Network (O-NET) database created by the U.S. Department of Labor. The O-NET database was created by the U.S. department of Labor and is currently the primary source of job information in the United States (Peterson, Mumford, Borman, Jeanneret, & Fleishman, 1999; Peterson et al., 2001). The O-NET project team consisted of government-contracted consulting firms and representatives from the Department of Labor. They collected comprehensive job analysis information from thousands of incumbents using a generic taxonomy. The taxonomy included assessments of occupation-specific worker characteristics, requirements, and experience (Peterson et al., 1999; Peterson et al., 2001). Thus, extensive information is now available for about 925 jobs, and the publicly available database includes job titles, synonym titles, and associated O-NET codes, which can then be used to match specific job titles with their coded characteristics.

To obtain an occupational prestige measure using the O-NET database, job titles were first matched to O-NET codes and then the codes were used to download relevant measurements from the database. In the first step, two trained raters independently assigned an O-NET code to each written job title by using the search tool available in the online database. Agreement reached 64% in this phase for the Time 2 jobs and 60% for the Time 3 jobs. In the second step, the two raters met and resolved their disagreements through discussion, which resulted in a 94% agreement rate for the Time 2 jobs and a 97% agreement rate for the Time 3 jobs. In the third step, the first and the second author independently read through the job titles and resolved any remaining disagreements. Finally, in a fourth step, the O-Net codes were used to download several measurements recorded in the O-NET database. Specifically, we obtained measures of occupational work values (Rounds, Henly, Dawis, Lofquist, & Weiss, 1981). These measurements were obtained by the O-NET team previously by surveying individuals pertaining to each job and asking them to identify, using 1 to 7 scales, values that were important to them, where higher scores indicated that the respective work value was more important for that particular job. Each job received six scores, one on each of the following dimensions: Achievement, Independence, Recognition, Relationships, Support, and Working Conditions. We used the mean of achievement and recognition as a proxy for occupational prestige, because these two work values emphasize high achievement and status, which are theoretically relevant to occupational prestige as defined by Stevens and Featherman (1981). The correlation between occupational prestige scores at year 11 and at year 50 was $r = .42$.

Analyses

Participants were excluded before the analyses based on response credibility. This credibility index was computed based on a Screening Scale that included questions such as "how many days are in a week?" that should have been answered easily by anyone who did not suffer from a reading problem, a clerical problem in recording answers, general slowness, or a lack of cooperation. We only analyzed cases that were coded as "credible" on the original Response Credibility Index (see Wise et al., 1979). Out of 377,016 cases available at Time 1, 346,660 were credible and not missing according to the response credibility index.

Attrition analyses were conducted to investigate whether individuals who dropped out from the study differed from those who remained in the study in terms of parental SES, personality traits, and cognitive ability (see Table 1 in supplementary materials). Specifically, participants who stayed in the study at each subsequent wave, as opposed to those who dropped from the study, were more intelligent (year 11: mean difference = .52, Cohen's $d = .72$; year 50: mean difference = .22, Cohen's $d = .45$) and came from higher parental SES backgrounds (year 11: mean difference = 2.68, Cohen's $d = .37$; year 50: mean difference = .77, Cohen's $d = .16$; see also Damian et al., 2015; Stone et al., 2014). This is quite common in longitudinal studies where original participants are contacted many years later, because participants with lower SES and lower cognitive abilities generally belong to the subpopulations that are hardest to reach (Stone et al., 2014).

As the measurement framework for the items in the Student Information Blank (SIB) was not fully known to the present authors, we decided to use an empirical approach to identify whether the scales given in the original handbook (see Original Handbook Appendix E-1, p. 312) could be supported by the data structure. The items were supposed to cover three domains: study habits and attitudes (16 items), self-perceived writing skills (4 items), and self-perceived reading skills (6 items). We applied an exploratory factor analysis method to identify the structure and number of factors in the SIB items. The item-pool was analyzed by means of an EFA with oblique rotation. The extraction of factors was based on the bass-ackward method (Goldberg, 2006). We

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choose this content based-approach over the classical indicators (e.g., Kaiser-Guttman, scree test) because those indicators often lead to an overidentification of factors (see Fabrigar, Wegener, MacCallum, & Strahan, 1999). Further, we were interested in exploring the different facets in student behavior rather than identifying the single best fitting factor structure (Goldberg, 2006). The bass-ackward method is a top-down approach where we extracted one factor, then two factors, then three, then four, and so on. We extracted and rotated factors subsequently until these factors were no longer interpretable in a meaningful manner (see Jackson et al., 2010). The final selection of items was based on those items that empirically demonstrated a unique loading (i.e., no cross-loadings) of at least a meaningful loading (>.30).

In a first step, a series of EFAs of increasing differentiation were run for the items. The resulting solutions were interpretable up to four factors (see Table 1). The four-factor solution showed the clearest differentiation of the factors and was closest to the initial classification of the items by the Project Talent Team. We created scales based on the four-factor structure. This procedure resulted in four to nine items per scale. We excluded two items because of low loading on all scales (<.20) or equally cross-loadings on more than two scales (see Table 1). Specifically, we identified the following scales: interest in school (9 items, McDonald's $\omega = .82$), reading skills (5 items, McDonald's $\omega = .76$), writing skills (4 items, McDonald's $\omega = .63$), and the responsible student scale (6 items, McDonald's $\omega = .65$). To create scale scores, we computed the average score for the items of each same scale, reverse scoring items where necessary as indicated in Table 1. All scales showed acceptable to good internal consistencies.

The *interest in school scale* encompassed items such as "Lack of interest in my schoolwork makes it difficult for me to keep my attention on what I am doing." and describes a lack of attention and to some extent, an unwillingness to take school seriously. We recoded the items so that higher values indicated higher interest in school-related tasks. The *responsible student scale* included items pertaining to industriousness and achievement-striving or motivation (e.g., "I keep up to date on my assignments by doing my work every day"). *The reading skills scale* included items such as "I read material over and over again without really understanding what I read", and depicted the students' problems with written material. Items were recoded so that higher values indicated better reading skills. The *writing skills scale* covered the students' abilities in written expression (e.g., "I have a difficult time expressing myself in written reports, examinations, and assignments") and how this related to their achievement in school. Items were recoded so that higher values indicated better writing skills. The correlations between the four student scales ranged from $r = .33$ to $r = .50$ (see Table 2).

Table 1
Factor Loadings and Factor Structure of the Student Characteristics in the Full Project Talent Sample

Item number and item content	1	2	3	4
Interest in school				
I have missed assignments or other important things that the teacher has said, because I was not paying attention (76) (r)	**.71**	.02	.04	.03
Failure to pay attention in class has caused my marks to be lowered (73) (r)	**.63**	.08	.05	.00
I get behind my school assignments (81) (r)	**.57**	.00	−.03	−.18
In class I can't seem to keep my mind on what the teacher is saying (80) (r)	**.55**	.19	−.04	−.06
I do my assignments so quickly that I don't do my best work (75) (r)	**.55**	.02	.02	.04
My teachers have criticized me for turning in sloppy assignments (77) (r)	**.51**	−.10	−.13	.04
Unless I really like a course, I do only enough to get by (78) (r)	**.50**	.06	−.07	−.15
Lack of interest in my schoolwork makes it difficult for me to keep my attention on what I am doing (71) (r)	**.48**	.18	−.04	−.14
I feel that I am taking courses that will not help me much in an occupation after I leave school (85) (r)	**.21**	.10	−.02	.01
Reading skills				
I have trouble remembering what I read (89) (r)	−.02	**.83**	.03	.03
I read material over and over again without really understanding what I read. (90) (r)	.05	**.81**	.04	.01
I don't seem to be able to concentrate on what I read. My mind wanders and many things distract me (87) (r)	.25	**.52**	.03	−.05
I seem to accomplish very little compared with the amount of time I spend studying (70) (r)	.16	**.30**	−.16	.04
Slow reading holds me back in my school work (83) (r)	.05	**.30**	−.26	.03
Writing skills				
I have difficulty with the mechanics of English composition (79) (r)	.22	−.01	**−.57**	.08
I have a difficult time expressing myself in written reports, examinations, and assignments (66) (r)	.05	.11	**−.56**	.07
I enjoy writing reports and compositions (72)	.11	.03	**.54**	.19
My grades on written examinations or reports haven been lowered because of careless errors in spelling, grammar, or punctuation (82) (r)	.32	−.02	**−.35**	.10
Responsible student scale				
I consider a very difficult assignments a challenge to my abilities (74)	.06	−.09	.17	**.43**
I do a little more than the course requires (65)	−.10	−.09	.06	**.37**
My grades reflect my ability fairly accurately (68)	−.23	−.02	−.01	**.35**
When studying for test, I am able to pick out important points to learn (86)	−.06	−.23	.13	**.34**
I keep up to date on my assignments by doing my work every day (88)	−.42	.10	.00	**.39**
I make sure that I understand what I am to do before I start an assignments (69)	−.29	−.04	.03	**.34**
Being a fast reader helps me complete my lessons quickly (67)	−.15	.28	−.24	−.18
I pronounce the words to myself as I am reading (84)	.01	.08	−.06	.18

Note. r = reversed item. Numbers in brackets indicate the original number in the Student Information Blank (SIB) questionnaire. Bold fond indicates the highest factor loadings on the respective factor.

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Table 2
Means, Standard Deviations, and Intercorrelations of Variables Under Study

Variable under study	*M*	*SD*	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Race	1.96	.21	**−.04**	**.02**	**.19**	**.23**	.01	**.03**	**.02**	**.03**	.00	**.02**	**.05**	**.07**	**.02**	−.01	.04	**.06**
2 Sex	1.52	.50		.00	**−.02**	**−.16**	**.22**	**.01**	**.28**	**.02**	**.19**	**.17**	**−.21**	**−.22**	**−.52**	**−.11**	**−.15**	**−.20**
3 Age cohort	10.43	1.10			**.08**	**.26**	**.15**	**.06**	**.03**	**.02**	.00	**.03**	.00	**.01**	**−.09**	.03	.03	.00
4 Parental SES	.00	1.00				**.44**	**.18**	**.19**	**.13**	**.17**	**.18**	**.15**	**.44**	**.33**	**.13**	**.40**	**.27**	**.28**
5 IQ	.00	1.00					**.17**	**.12**	**.22**	**.30**	**.21**	**.22**	**.54**	**.40**	**.19**	**.50**	**.35**	**.35**
6 Maturity	.00	.89						**.34**	**.36**	**.25**	**.31**	**.44**	**.15**	**.12**	**−.06**	**.17**	**.12**	**.10**
7 Extraversion	.00	.74							**.03**	**.15**	**.18**	**.15**	**.13**	**.13**	**.06**	**.11**	**.12**	**.14**
8 Interest in school	2.28	.73								**.48**	**.41**	**.50**	**.22**	**.13**	**−.08**	**.22**	**.13**	**.14**
9 Reading skills	2.53	.82									**.45**	**.33**	**.25**	**.18**	**.06**	**.26**	**.18**	**.21**
10 Writing skills	3.23	.88										**.33**	**.21**	**.13**	**−.04**	**.25**	**.17**	**.16**
11 Responsible student	3.30	.64											**.25**	**.16**	**−.03**	**.25**	**.16**	**.14**
12 Educational Attainment Y11	3.07	1.17												**.59**	**.30**	**.81**	**.44**	**.41**
13 Occupational Prestige Y11	4.19	1.18													**.35**	**.57**	**.42**	**.33**
14 Income Y11	9.07	.65														**.18**	**.25**	**.21**
15 Educational Attainment Y50	3.34	1.25															**.48**	**.41**
16 Occupational Prestige Y50	4.23	1.21																**.38**
17 Income Y50	2.87	.97																

Note. SES = socioeconomic status; Y11 = year 11 follow-up; Y50 = year 50 follow up. When measures were composites, we used standardized scores here. We used raw scores for the other variables. Race was dummy coded (2 = White/Caucasian, 1 = all other). Sex was dummy coded (1 = male; 2 = female). Bold font indicates that the 95% confidence interval did not include zero. Almost all correlations were statistically significant.

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For the main analyses, we conducted different sets of multiple regression analyses. For each outcome, that is, educational attainment, income, and occupational prestige we conducted a series of five regressions: To this end, Model Set 1 included only the controls race, gender, age cohort, and parental SES. Model Set 2 additionally included IQ (over and above Model Set 1). Model Set 3 additionally included the four student behaviors, that is, interest in school, reading skills, writing skills, and responsible student (over and above Model Set 2). Model Set 4 additionally included the two broad personality scales, that is, Extraversion and Maturity (over and above Model Set 2). Finally, Model Set 5 included all possible predictors (controls, parental SES, IQ, broad personality traits, and student behaviors).

We also conducted mediation analyses where the relation of our predictors to occupational prestige and income were mediated via educational attainment. In these models, we specified the full models (see Model Set 5 above): two for the year 11 outcomes and two for the year 50 outcomes. We specified educational attainment as a mediator between all other predictors and the outcome variable to test whether educational attainment mediated the effects of our predictors on career success. Therefore, every predictor was allowed to have both a direct and an indirect (via educational attainment) path to the outcome variables. The latter effect represents an effect that is transmitted via one (or more) mediator(s). All reported R^2 were adjusted for the number of predictors.

All analyses were conducted in Mplus 7.31 (Muthén & Muthén, 1998–2012). Missing data was accounted for using full information maximum likelihood (FIML). We used this model-based state-of-the art method for handling missing data to minimize potential biases because of study drop-out over time. FIML has been shown to handle missing data in a computationally efficient way and to be superior to traditional strategies (e.g., listwise or pairwise deletion; Enders, 2010). The FIML procedure includes all available data in a likelihood function to yield less biased results (Enders & Bandalos, 2001).

Results

First, we examined the correlations of the SIB scales with the two higher order personality factors (see Table 2) to evaluate the relations of the student characteristics with the broad personality factors. All student scales were positively related with Extraversion (*r*s = .03 to .18) and Maturity (*r*s = .25 to .44). Moreover all student scale were positively related to parental SES and IQ (*r*s = .13 to .30).

Second, we tested whether students' characteristics and behaviors were related to career outcomes across 11 and 50 years. Given our large participant sample and the sensitivity of null hypothesis significance testing (NHST) to participant sample size, most of our analyses resulted in significant results at $p < .005$. Therefore, we chose to focus on effect sizes and their interpretation, providing meaningful metrics (for an extensive discussion and recommendations to shift from NHST to effect size interpretation see Cumming, 2014). Furthermore, to help select effect sizes that were large enough to warrant discussion, we decided to focus on effect sizes equal to or larger than a correlation of .10, which is considered a small effect size, but quite common in psychology (Hemphill, 2003). A correlation of .10 or above translates into a standardized regression coefficient of roughly .05 and above, in the context of multiple regression analysis (Peterson & Brown, 2005).

Table 2 shows the means, *SD*s, and correlations of the constructs under investigation. A full table with the confidence intervals can be found in the supplemental material in Table A2.2. Interest in school measured in childhood was positively correlated with the

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outcome variables 11 years later (educational attainment, occupational prestige; *r*s = .13 to .22), and also 50 years later (educational attainment, occupational prestige, income; *r*s = .13 to .22). Reading skills measured in childhood were positively correlated with the outcome variables 11 years later (educational attainment, occupational prestige; income *r*s = .06 to .25), and also 50 years later (educational attainment, occupational prestige, income; *r*s = .18 to .26). Writing skills measured in childhood were positively correlated with educational attainment and occupational prestige (*r*s = .13 to .21). Moreover, we found positive correlations with all year 50 follow-up outcomes (*r*s = .16 to .25). Being a responsible student measured in childhood was positively correlated with educational attainment and occupational prestige (*r*s = .16 to .25) at the year 11 follow-up. At the year 50 follow-up all correlations with the outcomes were positive (*r*s = .14 to .25). Specifically, the more responsible and industrious students and students who showed more interest in school, had fewer problems with reading and higher writing skills reported having higher educational attainment and finding more prestigious jobs at both follow-ups. All student characteristics were related to income at the year 50 follow-up. Specifically, students who were more responsible, showed more interest in school, had fewer problems with reading, and higher writing skills reported earning higher incomes. These correlations provided the basis for the subsequent analyses. Overall, the correlational pattern showed that most of the student scales were related to educational attainment, occupational prestige, and income.

Third, we tested the incremental validity of each student scale over and above IQ, SES, and broad personality scales[3] by computing regression analyses that had educational attainment (Model Set A.1 to A.5), occupational prestige (Model Set B.1 to B.5), and income (Model Set C.1 to C.5) as outcome variables. We included all student scales irrespective of their bivariate relation to the outcomes to give a full picture of the result pattern. The results of these analyses for the year 11 follow-up outcomes are reported in Tables 3 to 5; the results for the year 50 follow-up outcomes can be found in Tables 6 to 8.[4] We ran different series of analyses to investigate the incremental validity (controlling for IQ, broad personality traits, and SES). In Model Set A.1 race, sex, age cohort, and parental SES were included. In Model Set A.2 IQ was additionally included (over and above A.1). In Model Set A.3 we additionally included the student scales (over and above A.2). In Model Set A.4 the two broad personality scales were included (over and above A.2) and in Model Set A.5 we included all predictors. This logic also applies to Model Sets B (occupational prestige) and C (income; see Tables 3–8). We will describe the results of the full models here.

We found different patterns of results across the outcomes and across the follow-up time-points (as foreshadowed by the bivariate correlations). In Model Set A.5 all predictors explained 41% of the variance in educational attainment at year 11 follow-up and 33% of the variance in educational attainment at year 50 follow-up. In Model Set B.5 all predictors explained 24% of the variance in occupational prestige at year 11 follow-up and 17% of the variance at year 50 follow-up. Moreover, in Model Set C.5 30% of the variance in income was explained by all predictors at year 11 follow-up and 24% were explained at year 50 follow-up.

In Model Set A.5 interest in school (β = .10), the responsible student scale (β = .11), writing skills (β = .05), IQ (β = .37), parental SES (β = .27) were meaningful predictors of educational attainment over and above the other predictors at year 11 follow-up. Occupational prestige (Model Set B.5) was predicted by interest in school (β = .07), responsible student scale (ß = .06), IQ (β = .28), and parental SES (β = .19) and Extraversion (β = .05) at year 11 follow-up. Income[5] (Model Set C.5) was predicted by IQ (β = .09), and parental SES (β = .09) at year 11 follow-up. Therefore, student behaviors in high school did not have a unique relation to income separate from parental SES and IQ.

At year 50 follow-up interest in school (β = .09), writing skills (β = .13), the responsible student scale (β = .14), IQ (β = .46), and parental SES (β = .28) were predictors of educational attainment over and above the controls (Model Set A.5). Occupational prestige (Model Set B.5) was predicted by writing skills (β = .08), the responsible student scale (β = .07), IQ (β = .24), and parental SES (β = .13) at year 50 follow-up. Income (Model Set C.5) was predicted by interest in school (β = .15), writing skills (β = .12), IQ (β = .19), and parental SES (β = .14) at year 50 follow-up.

For a more meaningful interpretation of the effect sizes we translated the test statistics into natural metrics. For example, moving up 1 *SD* on the responsible student scale was associated with gaining an extra 2.34 months of education by year 11 or an extra 2.52 month of education by year 50. For income, there was only a small effect at year 11: moving up 1 *SD* in interest in school translated, at average income, to the equivalent of $684 in increased purchasing power (adjusted for inflation to 2017 purchasing power). At year 50 we only had income categories, so it was not possible to translate into net-gain. For prestige, going from −2 *SD* to 2 *SD* in responsible student translated to an advantage of 7.48 prestige points (in the TSEI metric; i.e., the equivalent of going from a "sales representative" to a "purchasing agent and buyer") at year 11 and to an advantage of 5.36 prestige points (in the TSEI metric; i.e., the equivalent of going from a "sales representative" to an "insurance agent") at year 50. Those effects were controlled for IQ, SES, and broad personality traits.

Fourth, we tested whether educational attainment mediated the effects of student characteristics, broad personality traits, IQ, and SES on occupational prestige and income in the 11- and 50-year follow up. Therefore, we ran four regression models (based on Model Set 5). As we were interested in the direct and indirect effects of student characteristics, broad traits, IQ, and parental SES, we tested mediation models in which educational attainment at year 11 served as a mediator in all four models (see MacKinnon,

[3] We ran an additional set of analyses where we used the 10 PTPI scales (sociability [α = .83], social sensitivity [α = .85], impulsiveness [α = .72], vigor [α = .86], calmness [α = .87], tidiness [α = .86], culture [α = .81], leadership [α = .79], self-confidence [α = .78], and mature personality [α = .93]; for reliabilities and construct validation see Pozzebon et al., 2013) to control for broad personality traits. The results did not differ meaningfully from the results presented in the article and are reported in Tables A3.1 to A8.2 of the supplemental material.

[4] We additionally ran all regressions with listwise deletion for the purpose of a robustness check. The pattern of results did not differ from the results reported in the article and can be found in the supplemental material (Tables A3.3 to A8.5 of the supplemental material).

[5] We additionally recoded the year 11 income variable in a 5-point scale to make it more comparable with the year 50 outcome. We ran the full model with all predictors and the results did not differ from the results presented in the manuscript. The results can be found in Table A5.12 in the supplemental material.

Table 3
Standardized Regression Weights for the Relation of Student Characteristics, Broad Personality Traits, IQ, and SES With Educational Attainment 11 Years Later

Variable under study	Model Set A.1		Model Set A.2		Model Set A.3		Model Set A.4		Model Set A.5	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Race	−.04	[−.05; −.03]	−.11	[−.12; −.09]	−.10	[−.11; −.08]	−.10	[−.12; −.09]	−.10	[−.11; −.08]
Sex	−.21	[−.22; −.20]	−.20	[−.21; −.19]	−.26	[−.27; −.25]	−.22	[−.23; −.21]	−.26	[−.27; −.25]
Age cohort	−.04	[−.05; −.03]	−.12	[−.13; −.11]	−.11	[−.12; −.10]	−.13	[−.14; −.12]	−.11	[−.12; −.10]
Parental SES	.44	[.43; .46]	.30	[.28; .30]	.27	[.26; .28]	.27	[.26; .28]	.27	[.26; .28]
IQ			.43	[.42; .44]	.37	[.36; .38]	.42	[.41; .43]	.37	[.36; .38]
Maturity							.09	[.08; .09]	.01	[00; .01]
Extraversion							.02	[.02; .03]	.03	[.02; .03]
Interest in school					.10	[.09; .10]			.10	[.09; .11]
Reading skills					−.01	[−.02; .00]			−.02	[−.02; −.01]
Writing skills					.05	[.04; .06]			.05	[.04; .05]
Resp. student					.12	[.11; .12]			.11	[.10; .12]
R^2 adj	.24		.38		.41		.39		.41	

Note. SES = socioeconomic status; IQ = intelligence (average of verbal, math, and spatial z-scores); gender (1 = male, 2 = female); race (2 = White/Caucasian, 1 = all other); CI = confidence intervals; R^2 adj = adjusted for number of predictors.

Lockwood, Hoffman, West, & Sheets, 2002; Shrout & Bolger, 2002). The results of these analyses are reported in Tables 9 and 10, which contain the standardized coefficients for the direct, indirect, and total effect. For occupational prestige at years 11 and 50, 67 to 100% of the effects of interest in school and the responsible student scale were mediated via educational attainment at year 11, respectively. With regard to the prediction of income at years 11 and 50, 43 to 100% of the effect of interest in school and about two-thirds to 100% of the effects of the responsible student scale were mediated via educational attainment at year 11, respectively. In summary, the mediational effects of educational attainment were higher for the year 11 outcomes than for the year 50 outcomes.

Discussion

The present study tested the predictive validity of student characteristics and behaviors for real-life outcomes over and above well-established broad traits across the life span. In a first step, we factor analyzed the information provided by the SIB studying scale (for which no clear measurement framework was available). Specifically, we developed new scales that describe individual differences in student characteristics. These scales represented (childhood) student characteristics that showed some overlap with broad personality traits (Maturity and Extraversion) and some distinctive dimensions specific to the educational context (e.g., interest in school). In a second step, we investigated the predictive validity of those scales in a longitudinal sample. We were able to replicate our findings across two time-points (11 years after the initial assessment, and 50 years after the initial assessment). Higher levels of interest in school and higher levels of being a responsible student predicted higher educational attainment, higher occupational prestige, and higher income after controlling for IQ, parental SES, and personality traits 11 years as well as 50 years later.

Table 4
Standardized Regression Weights for the Relation of Student Characteristics, Broad Personality Traits, IQ, and SES With Occupational Prestige 11 Years Later

Variable under study	Model Set B.1		Model Set B.2		Model Set B.3		Model Set B.4		Model Set B.5	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Race	.00	[−.01; .01]	−.05	[−.06; −.03]	−.04	[−.30; −.17]	−.04	[−.06; −.03]	−.04	[−.05; −.03]
Sex	−.17	[−.18; −.16]	−.17	[−.18; −.16]	−.21	[−.54; −.49]	−.19	[−.20; −.18]	−.22	[−.23; −.20]
Age cohort	−.01	[−.02; −.00]	−.08	[−.08; −.07]	−.07	[−.09; −.07]	−.09	[−.10; −.08]	−.07	[−.08; −.06]
Parental SES	.33	[.31; .34]	.22	[.21; .23]	.21	[.24; .26]	.20	[.19; .21]	.19	[.18; .21]
IQ			.32	[.31; .33]	.27	[.32; .34]	.31	[.30; .32]	.28	[.27; .29]
Maturity							.09	[.08; .09]	.04	[.03; .05]
Extraversion							.05	[.04; .06]	.05	[.04; .06]
Interest in school					.06	[.06; .09]			.07	[.06; .08]
Reading skills					−.01	[−.02; .01]			−.01	[−.03; .00]
Writing skills					.04	[.04; .06]			.03	[.02; .04]
Resp. student					.08	[.08; .10]			.06	[.05; .07]
R^2 adj	.14		.22		.24		.23		.24	

Note. SES = socioeconomic status; IQ = intelligence (average of verbal, math, and spatial z-scores); gender (1 = male, 2 = female); race (2 = White/Caucasian, 1 = all other); CI = confidence intervals; R^2 adj = adjusted for number of predictors.

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Table 5
Standardized Regression Weights for the Relation of Student Characteristics, Broad Personality Traits, IQ, and SES With Income 11 Years Later

Variable under study	Model Set C.1		Model Set C.2		Model Set C.3		Model Set C.4		Model Set C.5	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Race	−.02	[−.03; −.01]	−.04	[−.05; −.03]	−.04	[−.05; −.02]	−.04	[−.05; −.03]	−.04	[−.05; −.02]
Sex	−.51	[−.52; −.50]	−.51	[−.52; −.50]	−.52	[−.53; −.51]	−.52	[−.53; −.51]	−.52	[−.53; −.51]
Age cohort	−.10	[−.11; −.09]	−.12	[−.13; −.11]	−.11	[−.12; −.11]	−.12	[−.13; −.12]	−.12	[−.13; −.11]
Parental SES	.14	[.13; .15]	.10	[.09; .11]	.10	[.09; .11]	.09	[.08; .10]	.09	[.08; .10]
IQ			.11	[.10; .12]	.09	[.08; .10]	.10	[.09; .11]	.09	[.08; .10]
Maturity							.03	[.03; .04]	.02	[.01; .03]
Extraversion							.04	[.03; .04]	.04	[.03; .05]
Interest in school					.01	[.00; .02]			.02	[.01; .03]
Reading skills					.03	[.02; .04]			.02	[.01; .03]
Writing skills					.00	[−.01; .01]			−.01	[−.02; .00]
Resp. student					.03	[.02; .04]			.02	[.01; .02]
R^2 adj	.29		.30		.30		.30		.30	

Note. SES = socioeconomic status; IQ = intelligence (average of verbal, math, and spatial z-scores); gender (1 = male, 2 = female); race (2 = White/Caucasian, 1 = all other); CI = confidence intervals; R^2 adj = adjusted for number of predictors.

As described in the results we translated the test statistics into natural metrics for a more meaningful interpretation of the effect sizes. These transformations show that the small effects that we found did have meaningful consequences for the participants over the life courses, for instance in terms of income.

Moreover, we showed that most of the effects were mediated by educational attainment. It seems that these early individual differences are relevant across the life span through the lens of education. Student characteristics and behaviors were rewarded in school and led to higher educational attainment as already stated in sociological models (e.g., Blau & Duncan, 1967). This supports the gatekeeping function of educational attainment. Students behave in certain ways based on their individual characteristics, they experience certain events across the different phases of their lives. Thereby, those characteristics can be viewed as factors that initiate a cascade of events that will influence behavior and decisions over a long period of time. This idea of time-specific and continuous processes linking personality traits (i.e., Conscientiousness) and important life outcomes (i.e., health) was also proposed by Shanahan and colleagues (see Shanahan, Hill, Roberts, Eccles, & Friedman, 2014). To the extent that these qualities are consistent over time, the behaviors that are based on these traits (e.g., working hard) will be rewarded in educational and occupational environments, and such rewards in turn may lead to stability in showing these kinds of behaviors. In summary, this might lead to different developmental trajectories that are in part the result of the cumulative influences of individual differences in childhood in the student characteristics and behaviors (see Spengler et al., 2015).

We were able to replicate, in part, the results from our prior research on the Luxembourgish sample (Spengler et al., 2015). Specifically, the responsible student scale, which was measured in a similar way in both samples showed predictive validity across success outcomes such as educational attainment and occupational prestige. We improved upon our prior longitudinal-prospective research by incorporating broad personality traits into the prediction of life outcomes in addition to student behaviors. We found

Table 6
Standardized Regression Weights for the Relation of Student Characteristics, Broad Personality Traits, IQ, and SES With Educational Attainment 50 Years Later

Variable under study	Model Set A.1		Model Set A.2		Model Set A.3		Model Set A.4		Model Set A.5	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Race	−.10	[−.17; −.03]	−.16	[−.24; −.09]	−.15	[−.22; −.08]	−.16	[−.23; −.08]	−.92	[−.22; −.08]
Sex	−.08	[−.13; −.04]	−.08	[−.12; −.04]	−.14	[−.45; −.25]	−.10	[−.14; −06]	−.36	[−.18; −.10]
Age cohort	−.02	[−.07; .02]	−.10	[−.14; −.05]	−.08	[−.16; −.05]	−.11	[−.16; −.07]	−.11	[−.13; −.05]
Parental SES	.40	[.35; .44]	.25	[.20; .29]	.22	[.23; .35]	.23	[.19; .28]	.28	[.18; .26]
IQ			.42	[.38; .47]	.36	[.39; .52]	.42	[.37; .46]	.46	[.31; .41]
Maturity							.11	[.07; .16]	.03	[−.04; .07]
Extraversion							.02	[−.02; .05]	.03	[−.02; .05]
Interest in school					.07	[.03; .14]			.09	[.02; .11]
Reading skills					−.02	[−.09; .05]			−.02	[−.07; .03]
Writing skills					.11	[.07; .20]			.13	[.05; .15]
Resp. student					.12	[.09; .20]			.14	[.06; .16]
R^2 adj	.16		.30		.33		.30		.33	

Note. SES = socioeconomic status; IQ = intelligence (average of verbal, math, and spatial z-scores); gender (1 = male, 2 = female); race (2 = White/Caucasian, 1 = all other); CI = confidence intervals; R^2 adj = adjusted for number of predictors.

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Table 7
Standardized Regression Weights for the Relation of Student Characteristics, Broad Personality Traits, IQ, and SES With Occupational Prestige 50 Years Later

Variable under study	Model Set B.1		Model Set B.2		Model Set B.3		Model Set B.4		Model Set B.5	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Race	−.05	[−.12; .01]	−.08	[−.16; −.01]	−.07	[−.14; .00]	−.08	[−.15; .00]	−.07	[−.14; .00]
Sex	−.13	[−.18; −.08]	−.12	[−.17; −.08]	−.16	[−.22; −.11]	−.14	[−.19; −.09]	−.17	[−.22; −.11]
Age cohort	.00	[−.05; .06]	−.05	[−.10; .00]	−.04	[−.09; .01]	−.06	[−.11; −.01]	−.04	[−.09; .01]
Parental SES	.26	[.21; .30]	.16	[.11; .21]	.14	[.09; .19]	.14	[.09; .19]	.13	[.09; .18]
IQ			.29	[.23; .34]	.24	[.17; .30]	.28	[.22; .33]	.24	[.18; .30]
Maturity							.08	[.03; .12]	.02	[−.04; .07]
Extraversion							.05	[.01; .10]	.05	[.00; .10]
Interest in school					.03	[−.03; .10]			.04	[−.03; .10]
Reading skills					.00	[−.06; .06]			−.01	[−.07; .05]
Writing skills					.09	[.04; .14]			.08	[.03; .13]
Resp. student					.08	[.03; .13]			.07	[.01; .12]
R^2 adj	.08		.15		.16		.16		.17	

Note. SES = socioeconomic status; IQ = intelligence (average of verbal, math, and spatial z-scores); gender (1 = male, 2 = female); race (2 = White/Caucasian, 1 = all other); CI = confidence intervals; R^2 adj = adjusted for number of predictors.

that being a responsible, motivated and achievement-striving student was important over and above personality traits like Conscientiousness. Moreover, the interest in school scale was related positively to the outcomes across 11 and 50 years above and beyond personality traits. In other words, not paying attention and getting behind in school assignments was related to worse educational attainment, lower occupational prestige, and lower income. This scale appears to be similar to the inattentiveness scale used in the Luxembourgish study where the students also answered questions regarding their attention in school. In contrast, in the Luxembourg study, we did not find meaningful relations of inattentiveness to long-term outcomes (Spengler et al., 2015). The discrepancy might be because of the fact that the Project Talent interest scale focused more on assignment-related behavior and consequences of that behavior that might have larger long-term consequences than getting bored in school.

Of interest to the authors, we found a tendency for higher correlations with the year 50 follow-up outcome income than with year 11 follow-up income. One possible reason for this pattern might be that it took time for people to achieve their maximum amount of education and thus reveal the effect of student behaviors on achievement. The participants in the Project Talent study did not reach their highest education 11 years after the baseline assessment. And, it also follows that they had yet to achieve the highest possible prestige 11 years after the first assessment in high school. This pattern is interesting because it contradicts the more common pattern in which predictive validity coefficients tend to degrade with time. In this case, time might have been the critical ingredient that allowed people to cumulate achievements that were a reflection of their past personality and behaviors.

Our findings were also counterintuitive because they contradicted the widely held assumptions behind the bandwidth-fidelity trade-off (Hogan & Roberts, 1996). The bandwidth fidelity trade-off indicates that broad measures, such as personality trait measures, should be superior at predicting broad outcomes, such as educational attainment. Narrow measures, like school-related be-

Table 8
Standardized Regression Weights for the Relation of Student Characteristics, Broad Personality Traits, IQ, and SES With Income 50 Years Later

Variable under study	Model Set C.1		Model Set C.2		Model Set C.3		Model Set C.4		Model Set C.5	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Race	.01	[−.09; .11]	−.07	[−.18; .05]	−.04	[−.17; .09]	−.06	[−.17; .05]	−.04	[−.18; .09]
Sex	−.31	[−.41; −.21]	−.28	[−.39; −.18]	−.32	[−.43; −.22]	−.29	[−.40; −.19]	−.32	[−.43; −.21]
Age cohort	−.02	[−.13; .08]	−.10	[−.19; .00]	−.06	[−.15; .04]	−.10	[−.20; −.01]	−.05	[−.14; .04]
Parental SES	.23	[.12; .34]	.14	[.03; .25]	.14	[.05; .24]	.13	[.03; .24]	.14	[.05; .24]
IQ			.30	[.20; .41]	.19	[.07; .30]	.29	[.19; .40]	.19	[.07; .30]
Maturity							.03	[−.09; .16]	−.04	[−.17; .09]
Extraversion							.03	[−.06; .12]	.02	[−.07; .10]
Interest in school					.14	[.01; .28]			.15	[.01; .28]
Reading skills					.06	[−.08; .20]			.06	[−.08; .21]
Writing skills					.11	[.02; .21]			.12	[.02; .21]
Resp. student					−.02	[−.13; .09]			−.01	[−.13; .11]
R^2 adj	.14		.21		.25		.20		.24	

Note. SES = socioeconomic status; IQ = intelligence (average of verbal, math, and spatial z-scores); gender (1 = male, 2 = female); race (2 = White/Caucasian, 1 = all other); CI = confidence intervals; R^2 adj = adjusted for number of predictors.

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Table 9
Standard Direct, Indirect, and Total Effects of Student Characteristics, Broad Personality Traits, IQ, and SES on Occupational Prestige and Income 11 Years Later

Effect decomposition	Occupational prestige year 11			Income year 11		
	β	95% CI	% Mediated	β	95% CI	% Mediated
Race						
Direct effect	.00	[−.01; .01]		−.02	[−.03; −.01]	
Indirect effect via educational attainment at year 11	−.05	[−.06; −.04]		−.02	[−.02; −.01]	
Total effect	−.04	[−.06; −.03]	100.00	−.04	[−.05; −.03]	50.00
Sex						
Direct effect	−.12	[−.13; −.11]		−.48	[−.49; −.47]	
Indirect effect via educational attainment at year 11	−.13	[−.13; −.12]		−.04	[−.05; −.04]	
Total effect	−.24	[−.26; −.23]	54.17	−.53	[−.54; −.52]	7.55
Age cohort						
Direct effect	−.02	[−.03; −.01]		−.10	[−.11; −.09]	
Indirect effect via educational attainment at year 11	−.05	[−.06; −.05]		−.02	[−.02; −.02]	
Total effect	−.07	[−.08; −.06]	71.43	−.12	[−.13; −.11]	16.67
Parental SES						
Direct effect	.07	[.06; .08]		.04	[.03; .05]	
Indirect effect via educational attainment at year 11	.13	[.12; .14]		.04	[.04; .05]	
Total effect	.20	[.19; .21]	65.00	.09	[.08; .10]	44.44
IQ						
Direct effect	.09	[.08; .10]		.03	[.02; .04]	
Indirect effect via educational attainment at year 11	.18	[.18; .19]		.06	[.06; .07]	
Total effect	.27	[.26; .28]	66.67	.09	[.08; .10]	66.67
Maturity						
Direct effect	.03	[.02; .04]		.02	[.01; .03]	
Indirect effect via educational attainment at year 11	.00	[.00; .01]		.00	[.00; .00]	
Total effect	.03	[.02; .04]	.00	.02	[.01; .03]	.00
Extraversion						
Direct effect	.04	[.03; .04]		.03	[.03; .04]	
Indirect effect via educational attainment at year 11	.01	[.01; .02]		.00	[.00; .01]	
Total effect	.05	[.04; .06]	20.00	.04	[.03; .05]	.00
Interest in school						
Direct effect	.02	[.01; .03]		.00	[−.01; .01]	
Indirect effect via educational attainment at year 11	.05	[.04; .05]		.02	[.02; .02]	
Total effect	.07	[.06; .08]	71.42	.02	[.01; .02]	100.00
Reading skills						
Direct effect	.00	[−.01; .01]		.02	[.01; .03]	
Indirect effect via educational attainment at year 11	−.01	[−.01; .00]		.00	[.00; .00]	
Total effect	−.01	[−.02; .00]	100.00	.02	[.01; .03]	.00
Writing skills						
Direct effect	.00	[−.01; .01]		−.02	[−.03; −.01]	
Indirect effect via educational attainment at year 11	.02	[.02; .03]		.01	[.01; .01]	
Total effect	.03	[.02; .03]	66.67	−.01	[−.02; .00]	33.00
Responsible student scale						
Direct effect	.00	[−.01; .01]		−.01	[−.01; .00]	
Indirect effect via educational attainment at year 11	.05	[.05; .06]		.02	[.02; .02]	
Total effect	.05	[.04; .06]	100.00	.01	[.01; .02]	100.00

Note. SES = socioeconomic status; IQ = intelligence (average of verbal, math, and spatial z-scores); age cohort, gender (1 = male, 2 = female); race (2 = White/Caucasian, 1 = all other). CI = confidence intervals; effect estimates came from the completely standardized solution of the corresponding models. Percent mediated was calculated by dividing the total indirect effect by the total effect (cf. MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002) but may differ slightly from the quotient total indirect effect/total effect in Table 9 because of rounding errors. The total effect is the sum of the direct and indirect effects. Education was measured as educational attainment at year 11.

haviors, should predict proximal outcomes such as school grades, but not predict long term outcomes better than traits because presumably, the trait variance in the narrower measure would be the causal force for long-term effects. Our results are in accordance with previous research focusing on the comparison of broad personality domains versus more narrow personality facets (especially by using the NEO-PI-R; e.g., Ashton et al., 1995; Paunonen & Ashton, 2001; Soto & John, 2017). The fact that we found narrow, school-based measures to predict above and beyond personality traits challenges the bandwidth-fidelity trade-off and points to the importance of narrow context- and time-specific activities and experiences. Another distinction should be taken into consideration when comparing broad traits and narrow student behaviors: specificity of content and specificity of context. The student scales reflect both specific content and context, whereas the Big Five (as well as the two higher order factors that we used in this study) reflect broad content and context. The student behaviors may incrementally predict outcomes across the life span because of their specific content, because of their specific context, or because of the combination of both characteristics. As we have run addi-

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Table 10
Standard Direct, Indirect, and Total Effects of Student Characteristics, Broad Personality Traits, IQ, and SES on Occupational Prestige and Income 50 Years Later

Effect decomposition	Occupational prestige year 50			Income year 50		
	β	95% CI	% Mediated	β	95% CI	% Mediated
Race						
Direct effect	−.04	[−.10; .03]		.01	[−.11; .13]	
Indirect effect via educational attainment at year 11	−.03	[−.04; −.02]		−.06	[−.12; .01]	
Total effect	−.07	[−.13; −.01]	42.86	−.04	[−.18; .09]	100.00
Sex						
Direct effect	−.09	[−.15; −.03]		−.28	[−.41; −.15]	
Indirect effect via educational attainment at year 11	−.08	[−.11; −.06]		−.04	[−.10; .02]	
Total effect	−.17	[−.23; −.12]	47.06	−.32	[−.43; −.21]	12.50
Age cohort						
Direct effect	.00	[−.05; .05]		−.03	[−.13; .07]	
Indirect effect via educational attainment at year 11	−.04	[−.05; −.03]		−.02	[−.05; .01]	
Total effect	−.04	[−.09; .01]	100.00	−.05	[−.14; .04]	40.00
Parental SES						
Direct effect	.05	[.00; .10]		.09	[−.02; .21]	
Indirect effect via educational attainment at year 11	.09	[.06; .11]		.05	[−.01; .11]	
Total effect	.14	[.09; .19]	64.29	.14	[.05; .24]	35.71
IQ						
Direct effect	.12	[.04; .20]		.13	[.01; .26]	
Indirect effect via educational attainment at year 11	.12	[.08; .15]		.06	[−.01; .12]	
Total effect	.24	[.17; .30]	50.00	.19	[.07; .30]	31.58
Maturity						
Direct effect	.02	[−.04; .07]		−.02	[−.15; .10]	
Indirect effect via educational attainment at year 11	.00	[.00; .01]		−.02	[−.07; .02]	
Total effect	.02	[−.04; .07]	.00	−.05	[−.18; .08]	40.00
Extraversion						
Direct effect	.04	[−.01; .09]		−.01	[−.10; .08]	
Indirect effect via educational attainment at year 11	.01	[.01; .01]		.03	[−.02; .08]	
Total effect	.05	[.00; .10]	20.00	.02	[−.07; .11]	100.00
Interest in school						
Direct effect	.01	[−.06; .07]		.09	[−.06; .24]	
Indirect effect via educational attainment at year 11	.03	[.02; .04]		.06	[−.01; .12]	
Total effect	.04	[−.03; .10]	75.00	.14	[.01; .28]	42.86
Reading skills						
Direct effect	.00	[−.06; .06]		.08	[−.06; .22]	
Indirect effect via educational attainment at year 11	−.01	[−.01; .00]		−.01	[−.05; .02]	
Total effect	.00	[−.06; .06]	.00	.06	[−.08; .21]	10.00
Writing skills						
Direct effect	.06	[.01; .11]		.10	[−.01; .20]	
Indirect effect via educational attainment at year 11	.01	[.01; .02]		.02	[−.01; .05]	
Total effect	.08	[.03; .13]	12.50	.12	[.02; .21]	16.67
Responsible student scale						
Direct effect	.03	[−.03; .08]		−.04	[−.14; .07]	
Indirect effect via educational attainment at year 11	.04	[.03; .05]		.03	[−.02; .08]	
Total effect	.06	[.01; .12]	66.67	−.01	[−.13; .11]	60.00

Note. SES = socioeconomic status; IQ = intelligence (average of verbal, math, and spatial z-scores); age cohort, gender (1 = male, 2 = female); race (2 = White/Caucasian, 1 = all other). CI = confidence intervals; effect estimates came from the completely standardized solution of the corresponding models. Percent mediated was calculated by dividing the total indirect effect by the total effect (cf. MacKinnon et al., 2002) but may differ slightly from the quotient total indirect effect/total effect in Table 10 due to rounding errors. The total effect is the sum of the direct and indirect effects. Education was measured as educational attainment at year 11.

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tional analyses with the 10 PTPI scales (that can be considered as narrow in content and broad in context) that showed the same pattern of results (compared with the Big Five and higher order traits) the latter interpretation may be appropriate.

Our findings raise the question of what is the conceptual relation between student behaviors and personality traits? One assumption would be that student behaviors would be narrower, context-defined versions of broader traits. Therefore, the responsible student dimension would be construed as a state-like version of conscientiousness. If this is the case, then it leads to the question of why these narrow constructs still predicted outcomes above and beyond personality traits. One possibility that must be considered is that the personality measure was not comprehensive or thorough enough. If this were the case, it would lead to the possibility that the student behaviors were not really narrow, state measures of traits, but were simply specific components of traits that had not been captured by the PTPI. Therefore, these measures would predict outcomes, not because of their specificity to place or time, but because they were tapping a facet of the personality traits space that was missed by

the PTPI. For example, the responsible student scale may have better tapped into the industriousness facet of conscientiousness than the subscales of the PTPI, such as the Maturity scale. While we cannot rule this possibility out, the PTPI did consist of 108 items that captured most of the positive aspects of personality thought to be related to educational and occupational outcomes (e.g., Mature Personality was assessed by items such as "I am hardworking" or "I am conscientious"). Regardless, it would be useful if future research investigated this same issue using a different personality measure and possibly a longer more exhaustive one than the PTPI.

Another potential answer to the question of why the student behaviors predicted long-term outcomes is a specific aspect of their contextual nature that has not been clearly considered in past research. These narrower behaviors may not predict long term outcomes because of their content, but because the developmental period when they were occurring. For example, being a responsible student during high school might have been fortuitous timing. Working hard for a brief period of time right before taking exams or getting letters of reference that are then critical to the cascade of events that follow such as entering college, might be uniquely important for some long-term life outcomes. In other words, it might not matter whether a person is conscientious at a young age, if they can act conscientiously in the most relevant context—school—that would lead to the positive outcomes often attributed to conscientiousness. This interpretation has interesting implications for the recent discussion of how educational systems should intervene to better equip students for the labor market. Specifically, it may be enough to focus on school-related behaviors for certain outcomes.

Setting these questions aside, this study showed that student specific behaviors and thoughts measured in adolescence had consistent relations to long-term outcomes above and beyond a set of highly relevant personality traits. At the very least, this indicates that it might make sense to assess those personality-related traits at a lower level of abstraction and ask for school-related behaviors instead of or in addition to general tendencies. Most recently, Mõttus and colleagues demonstrated that single items (that can be interpreted as contextualized personality nuances at a lower level) also predicted outcomes (Mõttus, Kandler, Bleidorn, Riemann, & McCrae, 2017). Our research also indicates the need to more thoroughly investigate the relation between student behaviors and personality, which has not been the objective focus of prior research. Just what these student behaviors are conceptually, remains a fascinating question in need of answering.

Limitations

In Project Talent, only self-reports were used to assess personality related behavior and traits. Future longitudinal studies should be designed with these factors in mind, thus including better personality measures, both self-reports and other reports, to ensure measurement accuracy. This is not only important to increase reliabilities (that are in part low for the self-reports) but also because other studies showed that for instance teacher-reports were valid indicators for later success (see Spengler et al., 2015).

Although we have a longitudinal dataset where predictors and outcomes were measured 11 and 50 years apart, our research is still observational. Therefore, the analyses and subsequent results should not be used to make causal inferences.

Finally, the 50-year sample is not fully representative. Participants who stayed in the study at each subsequent wave, as opposed to those who dropped from the study, were more intelligent and came from higher parental SES backgrounds (see Damian et al., 2015; Stone et al., 2014). This is quite common in longitudinal studies where original participants are contacted many years later, because participants with lower SES and lower cognitive abilities generally belong to the subpopulations that are hardest to reach (Stone et al., 2014).

Conclusion

We were able to use a large nationally representative sample of U.S. high school students to test whether school behaviors and attitudes predicted long term life outcomes above and beyond predictors typically considered in prospective longitudinal research. We showed in a longitudinal prospective study that being a responsible student and paying attention in school mattered in predicting status attainment in adulthood—along with IQ, SES, and personality. Moreover, we were able to replicate the findings across two time points (11 years and 50 years after the initial assessment).

This is the first longitudinal study to suggest that student characteristics and behavioral patterns in school are related to real-life outcomes after controlling for SES, IQ, and broad personality traits. It highlights the potential importance of what students do in school and how they react to their experiences during that time. It also highlights the possibility that things that happen in specific periods of one's life may play out in ways far more significant than we expect.

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