More Hardworking Than Smart: Nature and Origins of Stereotypes About Children From Socioeconomically Disadvantaged Backgrounds

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CRediT Statement

Eddie Brummelman played a lead role in conceptualization, funding acquisition, investigation, methodology, project administration, resources, supervision, writing–original draft, and writing–review and editing and an equal role in data curation. Aashna Poddar played a lead role in formal analysis and visualization, a supporting role in writing–review and editing, and an equal role in data curation. Lena-Emilia Schenker played a supporting role in analysis, visualization, and writing–review and editing, and an equal role in data curation. Andrei Cimpian played a lead role in validation and a supporting role in conceptualization, methodology, resources, supervision, and writing–review and editing.

Abstract

Cultural narratives often portray children from low socioeconomic status (SES) backgrounds as "strivers" or "go-getters" rather than naturally gifted. Could this reflect a more pervasive stereotype? Bridging insights from developmental, social, and educational psychology, we hypothesized that children endorse a stereotype that portrays children from low-SES backgrounds as more hardworking than smart—and that children acquire this stereotype, in part, through their parents. We tested this in a within-subjects experiment (October 2021, the Netherlands) involving children (*N* = 251, aged 8–13, 52% girls, 48% boys) and one of their parents (aged 29–59, 58% women, 42% men). As hypothesized, children perceived peers from low-SES backgrounds as more hardworking than intelligent. They attributed these peers' success more to hard work than intelligence, and failure more to a lack of intelligence than a lack of hard work. Parents held similar stereotypes. Children's stereotypes correlated with their parents' (standardized coefficient = 0.31). Children had stronger stereotypes when their parents had higher SES or stronger essentialist beliefs about SES (i.e., beliefs that SES is easily discerned, stable, and rooted in biology). These associations did not depend on children's age. Together, results reveal an early emerging stereotype, partially shared between parents and children, that portrays children from low-SES backgrounds as more hardworking than smart. Cultural narratives that provide seemingly positive portrayals of low-SES individuals as primarily hardworking might reflect and reinforce this stereotype.

Keywords: socioeconomic status, stereotypes, essentialism, ability beliefs

Public Significance Statement

Why are children from low socioeconomic status (SES) backgrounds often labeled as "strivers" or "go-getters" rather than naturally gifted—a perception that could constrain their educational opportunities? Our research reveals an early emerging stereotype, partially shared between parents and children, that portrays children from low-SES backgrounds as more hardworking than smart. This suggests that seemingly positive portrayals of low-SES individuals as primary hardworking may reflect and reinforce harmful societal stereotypes.

More Hardworking Than Smart: Nature and Origins of Stereotypes About Children From Socioeconomically Disadvantaged Backgrounds

As a child, Mirek Karel dreamed of becoming an orthopedic surgeon (van Sadelhoff, 2022). His mother was a nurse, and his father, who had not completed secondary school, worked a series of low-paying jobs. Despite Mirek's ambition and work ethic, his elementary school teachers advised him to pursue a vocational track, doubting his intelligence. Mirek persevered: He transitioned from the vocational to the academic track, gained admission to university, and ultimately became a surgeon. He often tells colleagues in the operating room: "I'm not naturally very intelligent, but I worked incredibly hard to get here." Mirek's story reflects a broader cultural narrative: Children from lower SES backgrounds are often seen as more hardworking than intelligent. In *Moving Up without Losing Your Way*, Jennifer Morton (2019) refers to disadvantaged college students as "strivers," while in *Doorzetters*, Mick Matthys (2010) describes university graduates from working-class families as "go-getters." Television shows—such as *America's Got Talent, American Idol,* and *Shark Tank*—reinforce this narrative by highlighting hard work as the primary source of upward social mobility (Kim, 2023).

Here, we ask: Why are children from low-SES backgrounds so often perceived as more hardworking than intelligent—a perception that may quietly constrain their educational opportunities, as Mirek's story reveals? We propose that these perceptions are due to a pervasive stereotype that portrays children from low-SES backgrounds as more hardworking than intelligent. We also propose that this stereotype emerges in childhood and might be shared between parents and children. We tested these hypotheses through a within-subjects experiment involving both children and their parents.

In this work, we defined SES as a family's position within a social and economic hierarchy (Diemer et al., 2013). SES includes both objective and subjective components. Objective SES reflects a family's material conditions and is typically measured in terms of income, education, and occupational prestige (Diemer et al., 2013; Kraus & Stephens, 2012; Lareau & Conley, 2008). In contrast, subjective

SES captures individuals' *perceptions* of their social rank—their sense of where they stand in the hierarchy relative to others—and is typically assessed via self-report instruments such as the MacArthur Scale of Subjective Social Status (Adler et al., 2000; Amir et al., 2019; Goodman et al., 2001; see also American Psychological Association, 2015). Both objective and subjective SES shape how people experience inequality and may influence the stereotypes they hold. We opted to frame the present research in terms of SES rather than the related construct of social class because social class is often defined narrowly in terms of labor relations rather than the broader social, economic, and psychological dimensions of hierarchy captured by SES (Chan & Goldthorpe, 2007; Wright, 2005).

SES Stereotypes

A sizeable body of research has revealed that both adults and children hold stereotypes about individuals from low-SES backgrounds. In many nations, adults see individuals from low-SES backgrounds as less competent than those from high-SES backgrounds (Durante et al., 2017). Specifically, they perceive them as less "intelligent," less "capable," and more "stupid" as well as less "hardworking," less "motivated," and "lazier" (Cozzarelli et al., 2001). Many of these stereotypes also extend to adults' perceptions of low-SES *children* specifically. For example, teachers perceive 7-year-old children from low-SES backgrounds as below average at reading and mathematics compared to peers from high-SES backgrounds, even when these children have identical reading and mathematics test scores (Campbell, 2015). Such stereotypes are acquired early by children themselves. Already at age 4, children associate wealth cues, such as expensive backpacks, with competence (Shutts et al., 2016). From age 6, children perceive adults with low SES as less competent than adults with high SES (Mistry et al., 2015; Sigelman, 2012), and they think that children from low-SES backgrounds do worse in school than those from high-SES backgrounds (Désert et al., 2009; Woods et al., 2005).

Most work on SES stereotypes has examined whether individuals from different socioeconomic backgrounds are perceived to differ on specific traits—for example, whether those from low-SES

backgrounds are seen as less intelligent than those from high-SES backgrounds. However, this between-group approach overlooks an important dimension: how different traits are perceived relative to each other *within the same group*. That is, stereotypes not only contrast groups (e.g., low vs. high SES) on specific traits (e.g., intelligence) but also privilege certain traits over others *within* a group. Among the various traits that could be compared within a group, ability and effort stand out as crucial because they represent the two dominant explanations people use to understand success and failure (Graham, 2020; Weiner, 1985). When someone succeeds or fails, observers typically attribute these outcomes either to how smart the person is or how hard they worked (e.g., Renoux et al., 2024), making the relative perception of these traits especially consequential. Thus, here we investigate whether low-SES children are viewed as more hardworking than smart—a "low SES = more hardworking than smart" stereotype.

Our proposal of within-group comparative stereotypes extends research on comparative advantage (Breda & Napp, 2019) and dimensional comparisons (Möller, 2024), which shows that people evaluate their traits and abilities not only relative to others or across time, but also across domains. For example, even though mathematics and verbal achievement are highly positively correlated, people often think of themselves as either a mathematics person or a verbal person (Marsh & Hau, 2004). To determine which label fits best, they compare their mathematics to their verbal achievement. Extending this logic to stereotyping, we propose that people tend to evaluate groups based on their most dominant trait—that is, the trait that stands out within a group's repertoire of traits. This tendency may be exacerbated for traits that people perceive (often, incorrectly) as having an inverse, either/or relationship with each other. Most relevant for our purposes here, people see others as *either* "naturals" (very smart) *or* "strivers" (very hardworking; Tsay & Banaji, 2011), a cognitive dynamic that emerges early in life (Ma et al., 2023). If children from low-SES backgrounds are seen as more hardworking than smart, this may be especially consequential in a society that often privileges natural talent over effort when allocating opportunities (e.g., Tsay & Banaji, 2011). This is known as "the

naturalness bias" (Wilner, 2003). Even young elementary school students prize effortless ability (Lassetter et al., 2025). Such within-group comparative stereotypes may be influential in self-perceptions as well. For example, people's educational choices and career aspirations are guided not just by their absolute ability levels but also by which traits they view as their relative strengths (for a recent review, see Möller, 2024). Thus, we suggest that the hypothesized relative perception of low-SES children as being more hardworking than smart ("strivers") may carry unique and underappreciated consequences for how they are treated by others and how they view themselves.

To date, no research has examined whether children from low-SES backgrounds are seen as more hardworking than smart, but indirect evidence supports this hypothesis. When asked to justify including a low- or high-SES peer in a group mathematics task, children (ages 9-18) mention effort more often for the low-SES peer and ability more often for the high-SES peer (Grütter et al., 2022). Children (ages 4-12) perceive poor groups as more hardworking than rich groups, while perceiving rich groups as more talented (ages 4-8) or equally talented (ages 9-12; Yang & Dunham, 2022, Study 1). Adolescents (ages 11-16) perceive poor peers as more hardworking but less intelligent than other peers (Skafte, 1989). We extend this research by shifting the focus from between-group comparisons to within-group comparisons, examining whether children from low-SES backgrounds are perceived as more hardworking than smart. If individuals indeed perceive children from low-SES backgrounds as more hardworking than smart, they may attribute their successes more to hard work than intelligence, and their failures more to a lack of intelligence than a lack of hard work. Consistent with this notion, for example, teachers attribute the success of a student from a low-SES (vs. high-SES) background more to effort, not ability (Schoneveld & Brummelman, 2023).

If present, the "low SES = more hardworking than smart" stereotype may not be endorsed equally by all groups. One possibility is that children and adults from higher-SES backgrounds endorse it more strongly. Existing inequalities in society are in their favor, so they may perceive them as fair and

perpetuate them (Blake et al., 2015; Rizzo & Killen, 2020). Moreover, because being seen as a "natural" is socially valued—especially in academic and professional domains (Lockhart et al., 2013; Tsay, 2016; Tsay & Banaji, 2011)—higher-SES individuals may be motivated to uphold a stereotype that casts their lower-SES counterparts as mere "strivers" (i.e., more hardworking than smart). Alternatively, lower-SES individuals may themselves endorse this stereotype more strongly, potentially as a protective strategy: Emphasizing effort over ability could preserve these individuals' faith in upward mobility—if hard work is what matters most, then success remains within reach despite structural barriers (Hadden et al., 2025). In this way, endorsing the within-group comparative stereotype that "low SES = more hardworking than smart" may serve different psychological and ideological functions across groups. Our study explores these possibilities by examining the extent to which children and adults from different socioeconomic backgrounds endorse this comparative stereotype.

Parent-Child Correspondence

How do children acquire the "low SES = more hardworking than smart" stereotype? They might acquire it, in part, through their parents (Allport, 1954; Degner & Dalege, 2013). Parents may know that children from low-SES backgrounds, due to their disadvantaged position, need to exert considerably more effort than their high-SES peers to succeed in school (Breen & Goldthorpe, 1999). Such effort is valued: People believe that effort signals moral character (Celniker et al., 2023), like those who work really hard better than those who are really smart (Yang et al., 2024), and praise those who succeed through effort more than those who succeed through ability (Rest et al., 1973; Weiner & Kukla, 1970). Parents may share this cultural celebration of effort via "rags-to-riches" stories, in which individuals from socioeconomically disadvantaged backgrounds overcome obstacles not through talent, but through hard work. *The Little Engine that Could*, for example, describes a little engine accomplishing the seemingly impossible task of pulling several wagons over a steep mountain. "I'm not very big," said the

little engine. Then she said, "I think I can. I think I can. I think I can," as she pulled the wagons over the mountain (Piper, 1976, pp. 26–31).

Although parent-child correspondence in SES stereotypes has, to our knowledge, never been studied directly, research shows that parents' beliefs about ability and effort are related to their children's (Haimovitz & Dweck, 2016). For example, the more parents associate brilliance (vs. other traits) with boys over girls, the more children do too (Zhao et al., 2022). These findings suggest that parents may also pass on stereotypes about SES—like seeing children from low-SES backgrounds as more hardworking than smart—even if unintentionally and unknowingly.

Which parents might be most likely to hold the "low SES = more hardworking than smart" stereotype and potentially transfer it to their children? Research has revealed three belief systems that are critical for stereotype formation in this domain: essentialist beliefs about SES, meritocratic beliefs, and social dominance orientation. These belief systems tend to be weakly positively related (Kraus & Keltner, 2013; Mandalaywala et al., 2018; Son Hing et al., 2011), which demonstrates their conceptual independence. However, they may all serve to justify existing inequalities by attributing them to the relevant groups' unobservable essences (i.e., essentialist beliefs about SES), to their relative effort (i.e., meritocratic beliefs), or to the naturalness of hierarchies in society (i.e., social dominance orientation).

First, *essentialist beliefs about SES* reflect the view that differences between socioeconomic groups are stable, immutable, and biologically determined (Kraus & Keltner, 2013). Essentialist beliefs are associated with stronger stereotypes across domains such as race, gender, and religion (Bastian & Haslam, 2006; Rhodes & Mandalaywala, 2017). Parents with stronger essentialist beliefs may perceive children from low-SES backgrounds as sharing an unobservable essence that makes them similar to one another and qualitatively different from those of high-SES backgrounds, reinforcing the view that being a "striver" is an inherent feature of a child from a low-SES background. Second, *meritocratic beliefs* reflect the view that effort—not luck or family background—determines success in life (Wiederkehr et

al., 2015; Young, 1958). This belief may legitimize inequalities by blaming disadvantaged groups for their predicament (Batruch, Jetten, et al., 2023; Hadden et al., 2025; Son Hing et al., 2011). Parents with stronger meritocratic beliefs may be more inclined to attribute children's successes to hard work rather than intelligence, especially if the children are from lower SES backgrounds. Parents may assume that these children, due to their background, needed to work even harder than their high-SES peers to achieve success, reinforcing a stereotypical view of them as "strivers." Third, *social dominance orientation* reflects a general endorsement of group-based hierarchies (Pratto et al., 1994, 2013). Such endorsement is related to seeing individuals from low-SES (vs. high-SES) backgrounds as less competent (Oldmeadow & Fiske, 2007). Because differences in intelligence are often seen as a legitimate reason for creating group-based hierarchies, especially in education (Croizet et al., 2017), parents with a stronger social dominance orientation may perceive children from low-SES backgrounds as less smart than hardworking (again, "strivers") and attribute their failures more to a lack of smartness than a lack of hard work.

Thus, parents with stronger essentialist beliefs, meritocratic beliefs, and social dominance orientation may endorse the "low SES = more hardworking than smart" stereotype more strongly. By expressing these beliefs or the stereotypes they ignite—through words or behaviors, or by creating an atmosphere that reflects them—parents may contribute to the formation of corresponding SES stereotypes in their children (Allport, 1954; Segall et al., 2015; Wang et al., 2025). This would be consistent with research showing substantial parent-child overlap in intergroup attitudes, including stereotypes (Degner & Dalege, 2013). We examined, for the first time, how parental beliefs along these three dimensions (essentialism, meritocracy, social dominance orientation) relate to parents' own stereotypes about SES, as well as their children's.

The Present Study

This research examined the nature and origins of children's stereotypes about individuals from low-SES backgrounds. We extend previous work in three ways. First, moving beyond between-group comparisons, we are the first to examine the "low SES = more hardworking than smart" stereotype—a within-group comparative stereotype. Second, we examine parent-child correspondence in this stereotype. Third, we examine the parental beliefs that may contribute to the formation of this stereotype among both parents and children.

We focused on late childhood and early adolescence (ages 8-13). Children as young as 4 or 5 understand that effort and ability are important sources of achievement, and that effort and ability can be compensatory (e.g., that those who have to work hard to complete a task have less ability than those who do not have to; Muradoglu & Cimpian, 2020). As children move into late childhood and early adolescence, their school environments more strongly emphasize social comparison and competition (Amemiya & Wang, 2018; Cimpian, 2017), making differences between students in effort and ability even more salient.

We recruited a sample of 8- to 13-year-old children and one of their parents. At baseline, they reported potential predictors of their stereotypes: subjective SES, objective SES, and parental beliefs (i.e., essentialist beliefs, belief in school meritocracy, and social dominance orientation). We measured parental income, education, and occupation as aspects of objective SES because they are considered the "triumvirate" of SES indicators, capture unique aspects of SES, and are used extensively across the social and behavioral sciences (Diemer et al., 2013, p. 81). As we did not have a priori hypotheses about differences between these SES indicators, we aggregated them into an overall objective SES index. We measured subjective SES in both parents and children, because children often perceive their SES differently than adults do (Peretz-Lange et al., 2022), and children's subjective SES shows unique associations with their beliefs beyond their parents' subjective and objective SES (Cardel et al., 2018; Rivenbark et al., 2020).

Subsequently, children and parents participated independently in a within-subjects experiment in which they evaluated children from low- and high-SES backgrounds who succeeded or failed in school. We manipulated SES in terms of wealth cues (e.g., material possessions, financial means) because both children and adults readily recognize and encode these cues (Legaspi et al., 2023; Shutts et al., 2016). We measured the extent to which participants perceived the children in our vignettes as hardworking and intelligent, and the extent to which they attributed these children's successes and failures to hard work or intelligence.

While not preregistered, the study was designed to test the following hypotheses. *First*, we hypothesized that children and parents would perceive those from low-SES backgrounds as more hardworking than intelligent, that they would attribute their success more to hard work than intelligence, and that they would attribute their failure more to a lack of intelligence than a lack of hard work. *Second*, we hypothesized that children's stereotypes would be associated with those of their parents. *Third*, we hypothesized that children of parents with stronger essentialist, meritocratic, or social dominance beliefs would have stronger stereotypes. We conducted confirmatory analyses to test these hypotheses. Relatedly, we conducted exploratory analyses to examine whether children and parents from high- or low-SES backgrounds endorse the "low SES = more hardworking than smart" stereotype more strongly.

Method

Participants

Participants were 251 children (52% girls, 48% boys, none identified as another gender; 93% born in the Netherlands) aged 8–13 (M = 9.84 years, SD = 1.43) and one of their parents (58% women, 42% men, none identified as another gender; 92% born in the Netherlands) aged 29–59 (M = 41.96 years, SD = 4.75). Participants visited Science Center NEMO, a Dutch science museum in Amsterdam, and were recruited for a study on beliefs about success and failure. As the largest science museum in

the country, NEMO attracts visitors from all over the Netherlands. The research was part of Science Live, a program that enables scientists to use NEMO visitors as participants.

Given our main hypothesis that children and parents would perceive those from low-SES (vs. high-SES) backgrounds as more hardworking than intelligent (reflecting an interaction between the target child's SES and their perceived trait: hardworking vs. intelligent), we conducted a simulation-based sensitivity power analysis to calculate the smallest interaction effects we could detect with 80% power given our sample size. These power analyses were computed with the *mixedpower* package (Kumle et al., 2021) using 10,000 simulations. The smallest detectable interaction effect across the parent models was $\beta = 0.22$ and across child models $\beta = 0.30$ (see Supplemental Table S1).[1] When standardized, all our observed interaction effects were greater than these smallest detectable effects, suggesting that our sample was adequately powered to detect the interactions of interest.

Transparency, Openness, and Research Ethics

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study. We were allowed a 16-day period of data collection (October 16-31, 2021), and we tested as many participants as possible within that period. All Dutch-speaking children aged 8-13 and their Dutch-speaking parents were eligible. We did not inspect or analyze the data before terminating data collection, and we did not exclude any participants.

Prior to their inclusion in the study, parents signed informed consent forms for their own and their child's participation. Children also provided assent. The study was approved by the Ethics Review Board of the Faculty of Social and Behavioral Sciences, University of Amsterdam (2021-CDE-13955). Data, syntax, codebook, and experimental materials are available on the Open Science Framework at

[1] Following convention, we use β to denote standardized coefficients and *b* to denote unstandardized coefficients.

https://osf.io/rb82p/ (Brummelman et al., 2026). The study also included variables that are not relevant to our current research questions and are therefore not reported here (but are listed in the codebook available via the Open Science Framework).

Socioeconomic Status

Objective

We operationalized objective SES as an aggregate of parental educational level, occupational prestige, and household income (Diemer et al., 2013; see Supplemental Table S2). We asked parents if their child had multiple parents; if so, parents reported both their own and the other parent's educational level and occupation. We did not measure wealth because participants experience questions about wealth as invasive and often have little knowledge of disparate economic assets (Diemer et al., 2013).

First, parents reported their highest level of completed education on a scale reflecting Dutch educational levels (16-point scale ranging from 1 = *Primary education*, 16 = *Doctorate degree*; median educational level: 12 = *Bachelor's degree*). Second, parents selected their occupation category from nine options, with higher levels indicating higher prestige (1 = *Agricultural occupation,* 9 = *Higher intellectual or liberal profession*; Ganzeboom, 2005; Vries & Ganzeboom, 2008; median occupational prestige level: 7 = *Middle-level intellectual or liberal profession, e.g., teacher, artist, nurse, social worker, policy officer*).[2] Third, parents reported their household's combined monthly net income on a 20-point scale (1

[2] Parents who were unemployed were assigned a missing value for occupational prestige. To ensure that this decision did not bias our results, we tested whether the results of our SEM analyses (see below) would change if we assigned these parents the lowest possible prestige score instead (i.e., an International Social-Economic Index of Occupational Status score of 17; Table S2). Using this modified SES composite did not alter the results (no statistically significant paths became non-significant, and no non-significant paths became significant).

= *€0 – €499*, 20 = *more than €20,000, namely [free entry];* median monthly net income: 10 = *€4,500 - €4,999*).

To create continuous scales, we recoded educational levels into International Standard Level of Education scores (Ganzeboom & Schröder, 2016; Schröder, 2014), occupational prestige levels into International Social-Economic Index of Occupational Status scores (Ganzeboom et al., 1992), and income levels into the midpoint of the selected range (e.g., we recoded €0 – €499 into 249.5; if participants selected the twentieth option, we used the income they reported; see Supplemental Table S2). There were no univariate outliers (absolute $z > 3.29$) in any of these measures, except one in income (€60,000, corresponding to $z = 12.57$). We winsorized the outlier by transforming it to the value at the 95th percentile of the data. We then *z*-scored (i.e., standardized) all variables, averaged them (Cronbach $\alpha = .75$), and finally *z*-scored the average to create the aggregate objective SES index (range = -2.27 – 2.46; $M = 0.00$, $SD = 1.00$).

Subjective

We assessed subjective SES using the MacArthur Scale of Subjective Social Status in children and parents individually (Adler et al., 2000; Amir et al., 2019; Goodman et al., 2001). Children and parents were shown a picture of a ladder with 10 rungs and were told: "Imagine that this ladder represents how the Netherlands is set up. At the top of the ladder [rung 10] are people who are well off: they have the most money, the best education, and the best jobs. At the bottom of the ladder [rung 1] are people who are not well off: they have the least money, little or no education, and the least desirable jobs. Where would your family be on this ladder? Choose the number that best fits" (children: $M = 7.28$, $SD = 1.19$; parents: $M = 7.57$, $SD = 1.09$).

Parental Beliefs

Parents then reported their beliefs. We assessed *essentialist beliefs about SES* using the 10-item Essentialist Beliefs About Social Class Categories Scale (Kraus & Keltner, 2013). Example items include:

"Social class is partly biological" and "Even after centuries, families will have the same social class as now" (1 = *Strongly disagree*, 7 = *Strongly agree*; *M* = 3.27, *SD* = 0.75; Cronbach α = .73). We assessed *belief in school meritocracy* using the 8-item Belief in School Meritocracy scale (Wiederkehr et al., 2015). Example items include: "To succeed at school, one only has to work hard" and "At school, students who obtain good grades are those who have worked hard" (1 = *Totally disagree*, 7 = *Completely agree*; *M* = 3.52, *SD* = 0.70; Cronbach α = .69). We assessed *social dominance orientation* using the 4-item Short Social Dominance Orientation scale (Pratto et al., 2013). Example items include: "Superior groups should dominate inferior groups" and "We should not push for group equality" (1 = *Extremely oppose*, 10 = *Extremely favor*; *M* = 3.50, *SD* = 1.49; Cronbach α = .59). For each scale, we reverse-coded negatively worded items and then averaged across items.

Experimental Procedure

We used a 2 (high SES, low SES) × 2 (success, failure) within-subjects experimental design. Independently, children and parents read four vignettes about hypothetical children, matched to their self-reported gender (girls, boys, or gender-neutral target). Each vignette described a hypothetical child from a high- or low-SES background who experienced success or failure in school, and each vignette was accompanied by an illustration (Supplemental Note 1). The vignettes were presented in random order.

Building on prior work (e.g., Grütter et al., 2022; Sigelman, 2012), we manipulated hypothetical children's SES by varying information about their family's socioeconomic conditions in terms of wealth, including material possessions (e.g., house, car) and financial means (e.g., having the money to go on vacation, buy food). Prior research shows that children and adults readily use such wealth cues to categorize and evaluate others (Legaspi et al., 2023; Shutts et al., 2016; Vandebroeck, 2021). We used wealth cues, rather than other SES cues, for two reasons. First, children know that wealth goes hand in hand with other SES indicators such as income, education, and occupation (Boer et al., 2024; Sigelman, 2012). Yet, they may be better able to categorize people based on wealth than on these other

indicators. Wealth cues are more concrete, less ambiguous, and covered more frequently in the books and television programs children consume (Belk, 1987; Carr et al., 2024). Second, our aim was to examine the "low SES = more hardworking than smart" stereotype. Compared to SES cues such as education and occupation, wealth does not inherently signal higher effort or ability (e.g., one need not be smart to be wealthy, especially considering that wealth can be inherited). Thus, by using wealth cues alone, we offered a more conservative test of our hypotheses.

We described the high-SES child as coming from a rich family, living in a big and new house, having two cars, often buying new things, often going on trips and holidays, and having the money to buy tasty and healthy foods. We depicted the child in front of a big house and two cars. We described the low-SES child as coming from a poor family, living in a small and old house, having one old and broken-down car, rarely buying new things, rarely going on trips or holidays, and not having the money to buy tasty or healthy foods. We depicted the child in front of a small house and one broken-down car. We then described the child's success (i.e., getting one of the highest grades in their class) or failure (i.e., getting one of the lowest grades in their class) in school.

To make sure that participants would perceive each child as a unique individual, we gave each one a different name, physical appearance, house, and car(s). We selected names that are common in both high- and low-SES families (Bloothooft & Onland, 2011) and physical appearances that do not reveal SES (Vandebroeck, 2021), so that they could be used for both high- and low-SES vignettes. For each gender, we created two versions of the vignette, so that the names and physical appearances of the high-SES children in one version corresponded to the names and physical appearances of the low-SES children in another version, and vice versa, thereby ruling out any systematic influence of names and physical appearances. We presented the vignettes in randomized order.

Design

Trait Perceptions. After reading about the child's SES but before reading about their success or failure, participants were asked: "What kind of person is [name], do you think?" Participants then rated how intelligent (*smart, intelligent*) and hardworking (*a hard worker, a go-getter*) they thought the child was (1 = *Not at all true* to 4 = *Completely true*). The correlations between the two items per trait were high (see Supplemental Tables S3 and S4), so we averaged them for ability and effort separately.

Success and Failure Attributions. After reading about the child's success or failure, participants were asked: "Why did [name] do well/poorly on the test, do you think?" Participants rated success attributions in terms of ability (*because he's smart, because he's intelligent*) and effort (*because he's a hard worker, because he's a go-getter*), and also rated failure attributions in terms of ability (*because he's not so smart, because he's not so intelligent*) and effort (*because he's not a hard worker, because he's not a go-getter*; 1 = *Not at all true* to 4 = *Completely true*). We averaged the ability and effort items separately for success and failure attributions. The correlations between the two items per attribution type were high (see Supplemental Tables S5-S8), so we averaged the ability and effort items separately for success and failure attributions.

Averaging the two items per trait yielded reliable scales, similarly for trait perceptions, success attributions, and failure attributions for high- and low-SES targets separately (see Table 1; for correlation matrices, see Tables 2 and 3).

Data Analysis

Children's and Parents' Stereotypes

To assess children's and parents' SES stereotypes, we fit linear mixed-effects models with the following predictors: vignette SES (1 = high-SES target, 0 = low-SES target), trait (1 = intelligent, 0 = hardworking), and their interaction. We ran three separate models, one each with trait perceptions, success attributions, and failure attributions as the dependent variable. To account for the within-

subjects study design, we included a random intercept for participant. To facilitate the interpretation of lower-order coefficients (e.g., main effects), we mean-centered all predictors.

Parent-Child Concordance

We examined associations between children's and parents' "low SES = more hardworking than smart" stereotypes. To do so, for children and parents separately, we computed three scores, each reflecting the extent to which individuals see children from low-SES (vs. high-SES) backgrounds as more hardworking than smart.

1. *Trait perceptions bias score* = (seeing low-SES children as hardworking – seeing low-SES children as intelligent) – (seeing high-SES children as hardworking – seeing high-SES children as intelligent). Higher scores reflect a stronger tendency to see children from low-SES (vs. high-SES) backgrounds as more hardworking (vs. intelligent).
2. *Success attributions bias score* = (attributing low-SES children's success to hard work – attributing low-SES children's success to intelligence) – (attributing high-SES children's success to hard work – attributing high-SES children's success to intelligence). Higher scores reflect a stronger tendency to attribute the success of children from low-SES (vs. high-SES) backgrounds to hard work (vs. intelligence).
3. *Failure attributions bias score* = (attributing low-SES children's failure to lack of intelligence – attributing low-SES children's failure to lack of hard work) – (attributing high-SES children's failure to lack of intelligence – attributing high-SES children's failure to lack of hard work). Higher scores reflect a stronger tendency to attribute the failure of children from low-SES (vs. high-SES) backgrounds to lack of intelligence (vs. lack of hard work).

We conducted structural equation modeling (SEM) to examine (a) associations between parents' beliefs, parents' SES stereotypes, and children's SES stereotypes, as well as (b) an indirect path from parents' beliefs to children's SES stereotypes through parents' SES stereotypes. Within this model, we

estimated children's and parents' "low SES = more hardworking than smart" stereotypes as latent factors, with trait perception, success attribution, and failure attribution bias scores as observed indicators. The standardized loadings of trait perception, success attribution, and failure attribution bias scores on their respective latent constructs were substantial, for both children (range = 0.45 – 0.71) and parents (range = 0.55 – 0.84). We estimated a single stereotype factor using bias scores because this is both parsimonious and fits our theoretical framework. This framework focuses on within-group contrasts (i.e., the relative distance between effort and ability attributions for low- and high-SES targets), which are captured by the bias scores, and assumes a single underlying "low SES = more hardworking than smart" stereotype, which is captured by the single latent factor.

In this same model, we regressed (a) parents' SES stereotypes on parental beliefs (i.e., essentialist beliefs about SES, belief in school meritocracy, and social dominance orientation) and parent SES (both objective and subjective), and (b) children's SES stereotypes on parental beliefs, parental SES (both objective and subjective), parents' SES stereotypes, and child subjective SES. This approach allowed us to account for the covariance between parental beliefs while also assessing their association with parents' and children's SES stereotypes. We standardized predictors prior to inclusion in the model, allowing us to more easily compare effect sizes across predictors that were initially on different scales.

We fit the SEM using the *lavaan* package in R (Rosseel, 2012). We used maximum likelihood estimation with robust standard errors (MLR) and imputed missing data using full-information maximum likelihood (FIML). Only two observations were missing: child age (n = 1) and parent stereotype (n = 1). The final model indicated an excellent fit to the data, $\chi^2(43) = 45.68$, $p = .362$, CFI = 0.99, RMSEA = 0.02, SRMR = 0.04 (Hu & Bentler, 1999). We computed bootstrapped confidence intervals for direct and indirect effects (Hayes & Scharkow, 2013). We report standardized estimates.

Results

Table 4 displays correlations between main study variables. Essentialist beliefs about SES, belief in school meritocracy, and social dominance orientation were only weakly positively correlated ($.09 \leq r \leq .16$), attesting to their independence. Objective SES was positively related to parents' subjective SES ($r = .53$), but not children's subjective SES ($r = .02$). Children's subjective SES was not related to parents' subjective SES either ($r = .05$), attesting to their independence.

Children's Stereotypes

Table 5 presents the full model outputs. We report marginal (or model-predicted) means, accompanied by 95% confidence intervals (CIs). The means are also depicted in Figure 1 (top half).

Trait Perceptions

We first tested our hypothesis that children perceive those from low-SES backgrounds as more hardworking than intelligent. There was a significant interaction between target SES and trait, $b = 0.79$, $SE = 0.07$, $p < .001$. As hypothesized, children viewed low-SES children as more hardworking ($M = 3.17$ [3.10, 3.23]) than intelligent ($M = 2.69$ [2.62, 2.76]), $b = -0.48$, $SE = 0.05$, $p < .001$, evidence of the hypothesized "low SES = more hardworking than smart" stereotype. In contrast, children viewed high-SES children as more intelligent ($M = 2.65$ [2.58, 2.72]) than hardworking ($M = 2.33$ [2.27, 2.40]), $b = 0.31$, $SE = 0.05$, $p < .001$.

Success Attributions

We then tested our hypothesis that children attribute the success of children from low-SES backgrounds more to hard work than to intelligence. There was a significant interaction between target SES and trait, $b = 0.35$, $SE = 0.07$, $p < .001$. As hypothesized, children attributed the success of children from low-SES backgrounds more to hard work ($M = 3.33$ [3.25, 3.41]) than to intelligence ($M = 3.05$ [2.97, 3.13]), $b = -0.28$, $SE = 0.05$, $p < .001$. They did not attribute the success of children from high-SES backgrounds significantly more or less to hard work ($M = 2.84$ [2.76, 2.92]) than to intelligence ($M = 2.90$ [2.82, 2.99]), $b = 0.07$, $SE = 0.05$, $p = .168$.

Failure Attributions

We then tested our hypothesis that children attribute the failure of children from low-SES backgrounds more to a lack of intelligence than to a lack of hard work. There was a significant interaction between target SES and trait, $b = -0.38$, $SE = 0.08$, $p < .001$. As hypothesized, children attributed the failure of children from low-SES backgrounds more to a lack of intelligence ($M = 2.33$ [2.24, 2.42]) than to a lack of hard work ($M = 1.99$ [1.90, 2.09]), $b = 0.34$, $SE = 0.06$, $p < .001$. They did not attribute the failure of children from high-SES backgrounds significantly more or less to a lack of intelligence ($M = 2.45$ [2.36, 2.54]) than to a lack of hard work ($M = 2.49$ [2.40, 2.58]), $b = -0.04$, $SE = 0.06$, $p = .485$.

Parents' Stereotypes

Table 6 presents the full model outputs. The means are depicted in Figure 1 (bottom half).

Trait Perceptions

We first tested our hypothesis that parents perceive those from low-SES backgrounds as more hardworking than intelligent. There was a significant interaction between target SES and trait, $b = 0.39$, $SE = 0.05$, $p < .001$. As hypothesized, parents viewed children from low-SES backgrounds as more hardworking ($M = 2.79$ [2.72, 2.87]) than intelligent ($M = 2.63$ [2.55, 2.70]), $b = -0.17$, $SE = 0.03$, $p < .001$, evidence of the hypothesized "low SES = more hardworking than smart" stereotype. In contrast, they viewed children from high-SES backgrounds as more intelligent ($M = 2.54$ [2.47, 2.61]) than hardworking ($M = 2.31$ [2.24, 2.39]), $b = 0.23$, $SE = 0.03$, $p < .001$.

Success Attributions

We then tested our hypothesis that parents attribute the success of children from low-SES backgrounds more to hard work than to intelligence. There was a significant interaction between target SES and trait, $b = 0.25$, $SE = 0.05$, $p < .001$. Parents did not attribute the success of children from low-SES backgrounds more to hard work ($M = 2.86$ [2.78, 2.94]) than to intelligence ($M = 2.84$ [2.76, 2.92]), $b =$

−0.02, *SE* = 0.04, *p* = .655. Parents did attribute the success of children from high-SES backgrounds more to intelligence (*M* = 2.81 [2.73, 2.89]) than to hard work (*M* = 2.58 [2.50, 2.66]), *b* = 0.23, *SE* = 0.04, *p* < .001.

Failure Attributions

We then tested our hypothesis that parents attribute the failure of children from low-SES backgrounds more to a lack of intelligence than to a lack of hard work. There was a significant interaction between target SES and trait, *b* = −0.25, *SE* = 0.05, *p* < .001. As hypothesized, parents attributed the failure of children from low-SES backgrounds more to a lack of intelligence (*M* = 2.10 [2.02, 2.17]) than to a lack of hard work (*M* = 1.94 [1.86, 2.02]), *b* = 0.16, *SE* = 0.04, *p* < .001, and they attributed the failure of children from high-SES backgrounds more to a lack of hard work (*M* = 2.24 [2.17, 2.32]) than to a lack of intelligence (*M* = 2.15 [2.07, 2.23]), *b* = −0.10, *SE* = 0.04, *p* = .012.

Robustness Checks

To examine the robustness of findings for children's and parents' stereotypes, we examined multivariate outliers (Cook's distance > 1) and reran the models with gender, age, and order of vignette presentation as covariates. There were no such outliers, and rerunning the models did not change our findings (i.e., no significant coefficient became non-significant, and no non-significant coefficient became significant). Supplemental Note 2 describes these results, and Supplemental Tables S9-S20 present the full model outputs.

These robustness analyses revealed some differences between fathers and mothers. Mothers viewed children from low-SES backgrounds as more hardworking *and* intelligent than did fathers. Also, they attributed the success of children from both low- and high-SES backgrounds more to hard work *and* intelligence than did fathers. Crucially, however, these effects of parents' gender did not interact with the trait they evaluated (intelligent vs. hardworking). In other words, the hypothesized "low SES = more hardworking than smart" stereotype did not vary with parent gender.

Parent-Child Correspondence

We examined parent-child correspondence in the "low SES = more hardworking than smart" stereotype via structural equation modeling (see Figure 2 and Table 7). We modeled children's and parents' stereotypes as latent factors, with trait perception, success attribution, and failure attribution bias scores as observed indicators.

We estimated a single model that enabled us to answer three key questions. First, we asked which parental beliefs (i.e., essentialist beliefs about SES, belief in school meritocracy, and social dominance orientation) were associated with parents' "low SES = more hardworking than smart" stereotypes. Parental essentialist beliefs about SES were associated with stronger parental stereotyping of low-SES children as more hardworking than smart, $\beta = 0.16$, bootstrapped 95% CI [0.02, 0.29]. Parental belief in school meritocracy, social dominance orientation, objective SES, and subjective SES were not significantly associated with parental stereotyping of low-SES children as more hardworking than smart (all bootstrapped 95% CIs contained zero).

Second, we asked whether parental beliefs, objective SES, parents' and children's subjective SES, and parents' stereotypes were associated with children's "low SES = more hardworking than smart" stereotypes. Parents' stereotypes and objective SES were positively associated with children's stereotypes of low-SES children as more hardworking than smart, $\beta = 0.31$, bootstrapped 95% CI [0.07, 0.50], and $\beta = 0.23$, bootstrapped 95% CI [0.01, 0.45], respectively.

Third, we asked whether parents' stereotypes mediated the associations between parental beliefs, objective SES, and subjective SES, on the one hand, with children's stereotypes, on the other. There was a significant indirect association between parental essentialist beliefs about SES and children's stereotypes via parents' stereotypes, $\beta = 0.05$, bootstrapped 95% CI [0.002, 0.12]. Thus, parents with stronger essentialist beliefs about SES more strongly endorsed the "low SES = more

hardworking than smart" stereotype; those who more strongly endorsed this stereotype, in turn, had children who did too.

Moderation by Child Age

We tested whether the above pathways were moderated by child age. We did so by creating a categorical age-group variable (children younger than age 10 vs. 10 years and older, with 10 being the median), allowing the path coefficients to vary by age group, and then comparing that (unconstrained) model to a model in which the path coefficients were constrained to be the same across age groups, which is roughly equivalent to a model that does not take age into account. A likelihood ratio test found no significant difference in fit between the unconstrained and constrained models, $\chi^2(12) = 13.76$, $p = .316$, indicating no evidence for moderation by age.

Robustness Checks

In the primary SEM models, we estimated children's and parents' "low SES = more hardworking than smart" stereotypes as latent factors, with trait perception, success attribution, and failure attribution bias scores as observed indicators. One could argue that bias scores are imprecise because they combine multiple variables into a single score, leading to a loss of information and specificity. To examine the robustness of the results, we reran the models in two ways (Supplemental Note 3). We first reran them using raw scores. These models were extremely complex and showed poor fit. We then reran them using a method that avoids the original bias scores (as described above) but still yields parsimonious models: that is, we calculated *intra-SES stereotype scores* (i.e., the extent to which low-SES and, separately, high-SES children were seen as more hardworking than smart). The results of these models were consistent with our primary SEM models but revealed a more fine-grained pattern. Whereas our primary SEM models revealed an indirect association between parental essentialist beliefs about SES and children's stereotypes via parents' stereotypes, our additional analyses showed that this indirect association was unique to intra-SES stereotypes measured via success attributions: Parents with

stronger essentialist beliefs about SES more strongly attributed the success of low-SES children to hard work relative to intelligence; those who made these attributions, in turn, had children who did too.

Discussion

Cultural narratives often portray children from low socioeconomic status (SES) backgrounds as "strivers" or "go-getters" rather than naturally gifted. Our research suggests that this might reflect an underlying "low SES = more hardworking than smart" stereotype. We adopted a novel focus on within-group comparative stereotypes, examining to what extent children and parents privilege hard work over intelligence *within* their perceptions of low- or high-SES groups. In our experiment, children perceived those from low-SES backgrounds as more hardworking than smart, attributed their success more to hard work than to intelligence, and attributed their failure more to a lack of intelligence than hard work. By contrast, children perceived those from high-SES backgrounds as more intelligent than hardworking, and attributed their successes and failures equally to intelligence and hard work. Parents held a similar "low SES = more hardworking than smart" stereotype. Importantly, children's SES stereotypes were related to those of their parents. Children from high-SES backgrounds held stronger SES stereotypes. Parents with stronger essentialist beliefs held stronger SES stereotypes; those who held stronger stereotypes, in turn, had children who did too. Our results thus reveal an early emerging within-group comparative stereotype, partially shared between parents and children, that portrays children from low-SES backgrounds as more hardworking than smart.

Theoretical Implications

Our work introduces a novel focus on within-group comparative stereotypes about SES. Extending research relying on comparisons *between* SES groups (Durante & Fiske, 2017), our research demonstrates the importance of comparing effort and ability perceptions *within* SES groups, revealing that children from low-SES backgrounds are seen as more hardworking than smart, while those from high-SES backgrounds are seen—especially by parents—as more smart than hardworking. Perceiving

hard work or intelligence as a group's dominant trait can have important downstream consequences. Society prefers naturals (who are really smart) over strivers (who work really hard). Although people deem strivers morally admirable (Celniker et al., 2023) and likeable (Yang et al., 2024), they offer opportunities disproportionally to naturals. In business, for example, people pass over better-qualified individuals in favor of apparent naturals (Tsay, 2016). In music, experts perceive naturals as more talented than strivers, even when their performance is identical (Tsay & Banaji, 2011). Even children prize effortless ability (Lassetter et al., 2025). Such a preference for naturals might be most pronounced in brilliance-oriented contexts, where success is thought to require exceptional intellectual ability or "brilliance" (Bauer et al., 2025; Leslie et al., 2015). If internalized, the "low SES = more hardworking than smart" stereotype may also shape educational choices and career aspirations, as individuals are guided by their self-perceived relative strengths (e.g., Breda & Napp, 2019).

Our focus on within-group comparative stereotypes may shed light on the prejudice faced by those from low-SES backgrounds. Research on dimensional comparisons (Möller, 2024) shows that when people learn that they performed well in mathematics, they often infer that they have lower verbal ability (Möller & Köller, 2001) because they think of themselves as either a "math person" or a "verbal person"—not both (Marsh & Hau, 2004). These inferences are particularly intuitive for pairs of traits that are perceived (often, incorrectly) as mutually exclusive dimensions of competence—as in the case of verbal versus mathematical ability, or effort versus ability (Amemiya & Wang, 2018). If the same inferential processes shape how we perceive others, portraying children from low-SES backgrounds as "strivers" could make them seem less "gifted." This perception could then trigger actual bias, such as teachers assigning children from low-SES backgrounds to lower academic tracks even when their test scores are identical to those of their high-SES peers (Batruch, Geven, et al., 2023). Moreover, the striver narrative may stigmatize low-achieving children from low-SES backgrounds, implying that they are *content* with their lower achievement—after all, if they truly wanted to succeed, they would have tried

harder (Amemiya, Heyman, et al., 2023). This interpretation overlooks the structural obstacles that children from low-SES backgrounds face in school. Of course, this does not imply that the striver narrative should be abandoned in books or other media: It embodies deeply held cultural values, such as redemption (McAdams, 2004) and meritocracy (Hadden et al., 2025). Rather, it suggests the need to teach that ability develops through effort (Hecht et al., 2023) so that strivers are not seen as less gifted, and to highlight structural barriers (Amemiya, Mortenson, et al., 2023) so that low-SES children who struggle academically are not held personally responsible.

Shifting our focus from within- to between-SES stereotypes, exploratory analyses (Supplemental Note 4) reveal that stereotypes about children from low-SES backgrounds are not inherently negative. These analyses show children from low-SES backgrounds were perceived as significantly more hardworking than their high-SES peers. However, they were not perceived as less intelligent: Children perceived them as equally intelligent, and parents perceived them as slightly more intelligent. This appears to contradict prior research suggesting that low-SES children are perceived to have lower intellectual ability (Brummelman & Sedikides, 2023; Durante & Fiske, 2017). Yet, two key differences help reconcile these findings. First, much of the earlier research did not distinguish between ability and effort. When studies did make this distinction, they found that low-SES children were seen as more hardworking, but not necessarily less intelligent (Skafte, 1989; Yang & Dunham, 2022). Second, previous research has largely focused on perceptions of adults, who are often held responsible for their socioeconomic position. By contrast, children are seen as products of the *lottery of birth* (Heckman, 2011), and may thus be judged more sympathetically, especially in terms of effort. Although seemingly benign, this perception could reinforce the belief that children from low-SES backgrounds can overcome every obstacle through hard work, reducing the perceived urgency among policymakers to address these obstacles (Batruch, Jetten, et al., 2023). This aligns with work on the *thick-skin bias*, showing that

people mistakenly assume that those growing up in poverty are better able to deal with adversity (Cheek & Shafir, 2024).

Together, these findings raise an important question: If *between*-group comparisons show that low-SES children are perceived as equally (or even more) intelligent and more hardworking, why should we be concerned about the *within*-group stereotype we document? We propose that both types of comparisons—between-group (social) and within-group (dimensional)—likely occur simultaneously but have distinct consequences. The between-group stereotype ("low-SES children are more hardworking than high-SES children") can appear sympathetic or even flattering, whereas the within-group stereotype ("low-SES children are more hardworking than smart") subtly undermines perceptions of cognitive potential. The dimensional comparison literature (Marsh & Hau, 2004; Möller & Köller, 2001) suggests that people often compare attributes within the same target to form cognitive profiles—inferring, for example, that strength in one domain implies relative weakness in another, particularly when these traits are viewed as mutually exclusive. Applied to person perception, this means that *when evaluating individual students*, decision-makers may engage less in abstract between-group reasoning ("Are low-SES children as smart as high-SES children?") and more in within-target comparisons ("Is this [low-SES] child naturally gifted or just a hard worker?"). This distinction is critical because research on the naturalness bias shows that effort-based success tends to be valued less and seen as signaling lower potential than success attributed to innate ability (Lassetter et al., 2025; Tsay, 2016; Tsay & Banaji, 2011). Thus, even if teachers genuinely believe that low-SES children are "just as smart" as high-SES children, reliance on the within-group "more hardworking than smart" stereotype may lead them to interpret the individual achievements of children from low-SES backgrounds as products of effort rather than talent, resulting in biased gatekeeping decisions such as lower-track placements despite equal test scores (Batruch, Geven, et al., 2023). Given these potential consequences, understanding the origins of this within-group SES stereotype is all the more critical.

Which children are most likely to hold the "low SES = more hardworking than smart" stereotype? First, children from higher SES backgrounds held stronger stereotypes, independently of parents' stereotypes. These children may be motivated to see their own group as more intelligent than hardworking, at the expense of other groups, as effortless intelligence is valued highly in society and is consistent with the independent values and soft individualism of high-SES families (Bourdieu, 1974; Kusserow, 1999; Piketty, 1998). Second, children of parents with stronger essentialist beliefs held stronger stereotypes, while children of parents with stronger meritocratic beliefs or social dominance orientation did not. Unlike those with strong meritocratic beliefs or social dominance orientation, parents with strong essentialist beliefs may perceive children from low-SES backgrounds as sharing an unobservable essence, making them similar to one another and qualitatively different from those of high-SES backgrounds, thereby reinforcing the view that being more hardworking than smart is an inherent feature of a child from a low-SES background. When parents hold essentialist beliefs about a social group, they use more generic language when discussing that group with their children, leading children to adopt similar beliefs (Rhodes et al., 2012). Parents may also provide more trait-based (rather than context-based) explanations when talking about children from different SES backgrounds (e.g., "She's a go-getter, just like the other kids from her neighborhood"), thereby encouraging children to view effort and intelligence as fixed, group-defining characteristics rather than as outcomes of experience.

What do our findings teach us about parental socialization of children's stereotypes? Our results reveal an association between children's and parents' stereotypes, which suggests parental socialization, with parents transmitting their stereotypes to their children (Degner & Dalege, 2013). A long tradition in psychology has emphasized the importance of parental socialization in children's stereotype formation (e.g., Allport, 1954; Devine, 1989). That said, our findings do not rule out other sources of parent-child correspondence. For example, children could transmit their stereotypes to their

parents, although this seems unlikely prior to late adolescence (Rodríguez-García & Wagner, 2009). Alternatively, it can result from shared genes and environments: Like other attitudes, stereotypes are moderately heritable (Cai et al., 2016) and might be shaped by environments shared by parents and children (e.g., neighborhoods, social networks).

Strengths, Limitations, and Future Directions

Our study has several strengths, including the identification of a novel within-group comparative stereotype, the use of experimental methods, and the exploration of parent-child correspondence. It also has limitations. First, we focused on children aged 8-13. Our study is unable to detect exactly when in development the "low SES = more hardworking than smart" stereotype emerges. We speculate that it emerges around age 6, when children differentiate effort and ability (Muradoglu & Cimpian, 2020) and readily infer others' traits based on their SES (Désert et al., 2009; Sigelman, 2012). Second, we conducted the study in the Netherlands, a country with relatively low socioeconomic inequality (Statistics Netherlands, 2024), and our sample had a relatively high average SES. Stereotypes may be stronger in countries with higher socioeconomic inequality (Durante et al., 2017), perhaps due to greater segregation and limited cross-SES contact (Mijs & Usmani, 2024).

Third, we used hypothetical scenarios to capture SES stereotypes, offering experimental control, and we conveyed SES through wealth cues. Real-life contexts, such as teacher-student relationships, may provide richer insight into how such stereotypes play out and whether they fade, persist, or intensify over time (Rubinstein et al., 2018; Yeager & Walton, 2011). In such contexts, teachers may infer a student's SES not only from wealth cues but also from other indicators, such as parental occupation. Fourth, our study is unable to examine prospective relations. For example, our finding that stereotypes of parents are related to those of their children does not imply that they are transmitted from parents to children; this conclusion would require prospective-longitudinal data. Thus, we call on researchers to replicate and extend our work to examine whether our findings generalize to younger children, to

countries with greater inequality, and to dynamic real-life contexts with a multitude of SES cues, and to examine whether and how parents actively transmit the "low SES = more hardworking than smart" stereotype to their children.

Our findings generate novel research directions. First, research should examine parental socialization. Do parents actively transmit their own "low SES = more hardworking than smart" stereotype to their children? Even if not, do they engage in practices that cultivate the stereotype in children, either intentionally or unintentionally? For example, parents may cultivate the stereotype by attributing high SES more to intelligence than effort (e.g., "When you're smart, you'll get rich"), praising those who are upwardly mobile (e.g., "They are real go-getters!"), or using essentialist language when describing those from different SES backgrounds (e.g., "The poor are just like that").

Second, research should examine the downstream consequences of SES stereotypes. Do children internalize them? First-generation university students (who tend to be from lower SES backgrounds) perceive themselves as less intelligent—but not less hardworking—than other students, especially in brilliance-oriented contexts (Bauer et al., 2023). Similar evidence exists in children (Brummelman & Sedikides, 2023; Hofer et al., 2024), echoing Mirek's words: "I'm not naturally very intelligent, but I worked incredibly hard to get here." Once internalized, stereotypes may inform children's interests. For example, would children from low-SES backgrounds prefer effort-based tasks over those requiring intelligence? This can have real-world consequences. As even young children believe that mathematics requires brilliance (Jenifer et al., 2024; Muradoglu et al., 2025), children from low-SES backgrounds might avoid mathematics, regardless of their actual mathematics ability.

Third, research should examine how the "low SES = more hardworking than smart" stereotype may contribute to inequality in the classroom. Although most teachers are motivated to reduce inequalities in the classroom, they may unintentionally and unknowingly perpetuate them (Turetsky et al., 2021). When teachers perceive children from low-SES backgrounds as more hardworking than smart,

they may provide superficially positive feedback that undermines their perceived intelligence. When a child from a low-SES background succeeds, teachers are inclined to attribute this to hard work and lavish the child with inflated praise, like "You did *amazingly* well!" (Schoneveld & Brummelman, 2023, Study 1). Ironically, the inflated praise leads children to be seen as less intelligent—but more hardworking—by their classmates (Schoneveld & Brummelman, 2023, Study 2). Similar processes may apply to unsolicited help and comfort-oriented feedback (Brummelman & Sedikides, 2023). For example, when a child from a low-SES background struggles or fails, teachers may be inclined to attribute this to a lack of intelligence, offering unsolicited help (e.g., "Here, let me do it for you"; Sierksma & Brummelman, 2025) and comfort-oriented feedback (e.g., "It's ok—not everyone can be good at math"; Rattan et al., 2012). Researchers should test these hypotheses directly.

Conclusion

With inequality on the rise, societies continue to place a strong emphasis on effort as means of upward social mobility (Mijs, 2021). Our research reveals an early emerging within-group comparative stereotype that portrays children from low-SES backgrounds as more hardworking than smart. Their successes are seen as a product of hard work more so than intelligence, and their failures as a product of a lack of intelligence more so than a lack of hard work. The stereotype is partially shared between parents and children. Our findings suggest that seemingly positive portrayals of children from low-SES backgrounds as "strivers" or "go-getters" may result from and reinforce deeply rooted societal stereotypes.

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Table 1

Reliabilities, Observed Means, and Standard Deviations for Stereotypes Held by Children and Parents

Variable	Children			Parents		
	α	*M*	*SD*	α	*M*	*SD*
Trait Perceptions						
High SES, intelligent	.72	2.65	0.53	.94	2.54	0.61
High SES, hardworking	.65	2.33	0.59	.94	2.32	0.61
Low SES, intelligent	.69	2.69	0.53	.92	2.63	0.56
Low SES, hardworking	.75	3.17	0.58	.93	2.80	0.59
Success Attributions						
High SES, intelligent	.66	2.90	0.63	.97	2.81	0.59
High SES, hardworking	.66	2.84	0.70	.95	2.58	0.65
Low SES, intelligent	.61	3.05	0.64	.97	2.84	0.65
Low SES, effort	.73	3.33	0.64	.98	2.86	0.71
Failure Attributions						
High SES, not intelligent	.62	2.45	0.69	.98	2.15	0.63
High SES, not hardworking	.76	2.49	0.78	.97	2.24	0.69
Low SES, not intelligent	.78	2.33	0.72	.96	2.10	0.61
Low SES, not hardworking	.79	1.99	0.80	.95	1.94	0.57

Table 2

Correlations Among Children's Trait Perceptions (TP), Success Attributions (SA), and Failure Attributions (FA)

		1	2	3	4	5	6	7	8	9	10	11	12
1	TP Low-SES Intelligent	1											
2	TP Low-SES Hardworking	.44***	1										
3	TP High-SES Intelligent	.00	.11^	1									
4	TP High-SES Hardworking	-.05	-.23***	.44***	1								
5	SA Low-SES Intelligent	.44***	.23***	.14*	.07	1							
6	SA Low-SES Hardworking	.23***	.49***	.10	-.05	.51***	1						
7	SA High-SES Intelligent	.06	.03	.48***	.31***	.43***	.25***	1					
8	SA High-SES Hardworking	-.04	-.07	.29***	.55***	.20**	.15*	.48***	1				
9	FA Low-SES Intelligent	-.08	-.06	.04	.08	.15*	.12^	.32***	.18**	1			
10	FA Low-SES Hardworking	-.06	-.22***	-.02	.22***	.12*	.04	.22***	.27***	.48***	1		
11	FA High-SES Intelligent	.03	.08	-.12^	-.02	.32***	.29***	.17**	.05	.27***	.14*	1	
12	FA High-SES Hardworking	.16**	.22***	-.06^	-.21***	.20**	.35***	.08	-.02	.10	.15*	.50***	1

Note. TP = Trait Perceptions, SA = Success Attributions, FA = Failure Attributions; ^$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$.

Table 3

Correlations Among Parents' Trait Perceptions (TP), Success Attributions (SA), and Failure Attributions (FA)

	Variable	1	2	3	4	5	6	7	8	9	10	11	12
1	TP Low-SES Intelligent	1											
2	TP Low-SES Hardworking	.80***	1										
3	TP High-SES Intelligent	.61***	.65***	1									
4	TP High-SES Hardworking	.54***	.50***	.74***	1								
5	SA Low-SES Intelligent	.55***	.56***	.44***	.29***	1							
6	SA Low-SES Hardworking	.56***	.66***	.54***	.38***	.72***	1						
7	SA High-SES Intelligent	.46***	.53***	.55***	.40***	.68***	.61***	1					
8	SA High-SES Hardworking	.49***	.46***	.48***	.57***	.49***	.60***	.66***	1				
9	FA Low-SES Intelligent	.07	.15*	.23***	.11	.31***	.23***	.29***	.12	1			
10	FA Low-SES Hardworking	.03	.05	.16*	.24***	.14*	.18**	.14*	.24***	.58***	1		
11	FA High-SES Intelligent	.19**	.22***	.23***	.11^	.37***	.30***	.31***	.18**	.64***	.42***	1	
12	FA High-SES Hardworking	.13*	.31***	.33***	.07	.31***	.44***	.31***	.23***	.52***	.45***	.63***	1

Note. TP = Trait Perceptions, SA = Success Attributions, FA = Failure Attributions; ^$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$.

Table 4

Correlations Involving Variables in the Structural Equation Model

		1	2	3	4	5	6	7	8	9	10	11	12
1	C Trait Bias	1											
2	C Success Bias	.44***	1										
3	C Failure Bias	.32***	.24***	1									
4	P Trait Bias	.15*	.15*	.15*	1								
5	P Success Bias	.11^	.19**	.12^	.46***	1							
6	P Failure Bias	.21**	.05	.04	.49***	.29***	1						
7	P Social Dominance	.03	-.08	.01	.01	.004	.06	1					
8	P Essentialist Beliefs	.04	.03	-.03	.12^	.10	.11^	.16*	1				
9	P School Meritocracy	-.05	.04	.03	-.07	-.02	-.06	.13*	.09	1			
10	P Objective SES	.09	.12^	.19**	.01	-.02	.03	.004	-.09	-.03	1		
11	P Subjective SES	-.01	.05	.05	-.002	-.05	.07	-.01	-.11^	-.01	.53***	1	
12	C Subjective SES	-.03	-.04	.10	-.001	-.03	.02	-.03	.06	.05	.02	.05	1

Note. "C" denotes child variables; "P" denotes parent variables; ^$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$.

Table 5

Results of Main Models for Children's Trait Perceptions, Success Attributions, Failure Attributions

	Children's Trait Perceptions			**Children's Success Attributions**			**Children's Failure Attributions**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	2.71	0.02	**<0.001**	3.03	0.03	**<0.001**	2.32	0.03	**<0.001**
Trait	-0.08	0.03	**0.012**	-0.11	0.03	**0.001**	0.15	0.04	**<0.001**
Vignette SES	-0.44	0.03	**<0.001**	-0.32	0.03	**<0.001**	0.31	0.04	**<0.001**
Trait × Vignette SES	0.79	0.07	**<0.001**	0.35	0.07	**<0.001**	-0.38	0.08	**<0.001**
	SD			*SD*			*SD*		
Participant Random Intercept	0.52			0.52			0.64		
N	251			251			251		
Observations	1004			1004			1004		
Marginal R^2 / Conditional R^2	0.221 / 0.309			0.078 / 0.384			0.064 / 0.317		

Note. Estimates (with standard errors) and goodness-of-fit statistics for the three separate linear mixed effects models regressing children's traits perceptions, success attributions, and failure attributions respectively, on the trait (smart = 0.5, hardworking = -0.5), vignette SES (rich = 0.5; poor = -0.5), and their interaction. Marginal R^2 represents the variance explained by the fixed effects alone, while conditional R^2 represents the variance explained by both the fixed and random effects together.

Table 6

Results of Main Models for Parents' Trait Perceptions, Success Attributions, Failure Attributions

	Parents' Trait Perceptions			**Parents' Success Attributions**			**Parents' Failure Attributions**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	2.57	0.03	**<0.001**	2.77	0.03	**<0.001**	2.11	0.03	**<0.001**
Trait	0.03	0.02	0.199	0.11	0.03	**<0.001**	0.03	0.03	0.249
Vignette SES	-0.28	0.02	**<0.001**	-0.16	0.03	**<0.001**	0.18	0.03	**<0.001**
Trait × Vignette SES	0.39	0.05	**<0.001**	0.25	0.05	**<0.001**	-0.25	0.05	**<0.001**
	SD			*SD*			*SD*		
Participant Random Intercept	0.36			0.40			0.42		
N	250			250			250		
Observations	1000			1000			1000		
Marginal R^2 / Conditional R^2	0.079 / 0.666			0.030 / 0.634			0.031 / 0.552		

Note. Estimates (with standard errors) and goodness-of-fit statistics for the three separate linear mixed effects models regressing parents' traits perceptions, success attributions, and failure attributions respectively, on the trait (smart = 0.5, hardworking = -0.5), vignette SES (rich = 0.5; poor = -0.5), and their interaction. Marginal R^2 represents the variance explained by the fixed effects alone, while conditional R^2 represents the variance explained by both the fixed and random effects together.

Table 7

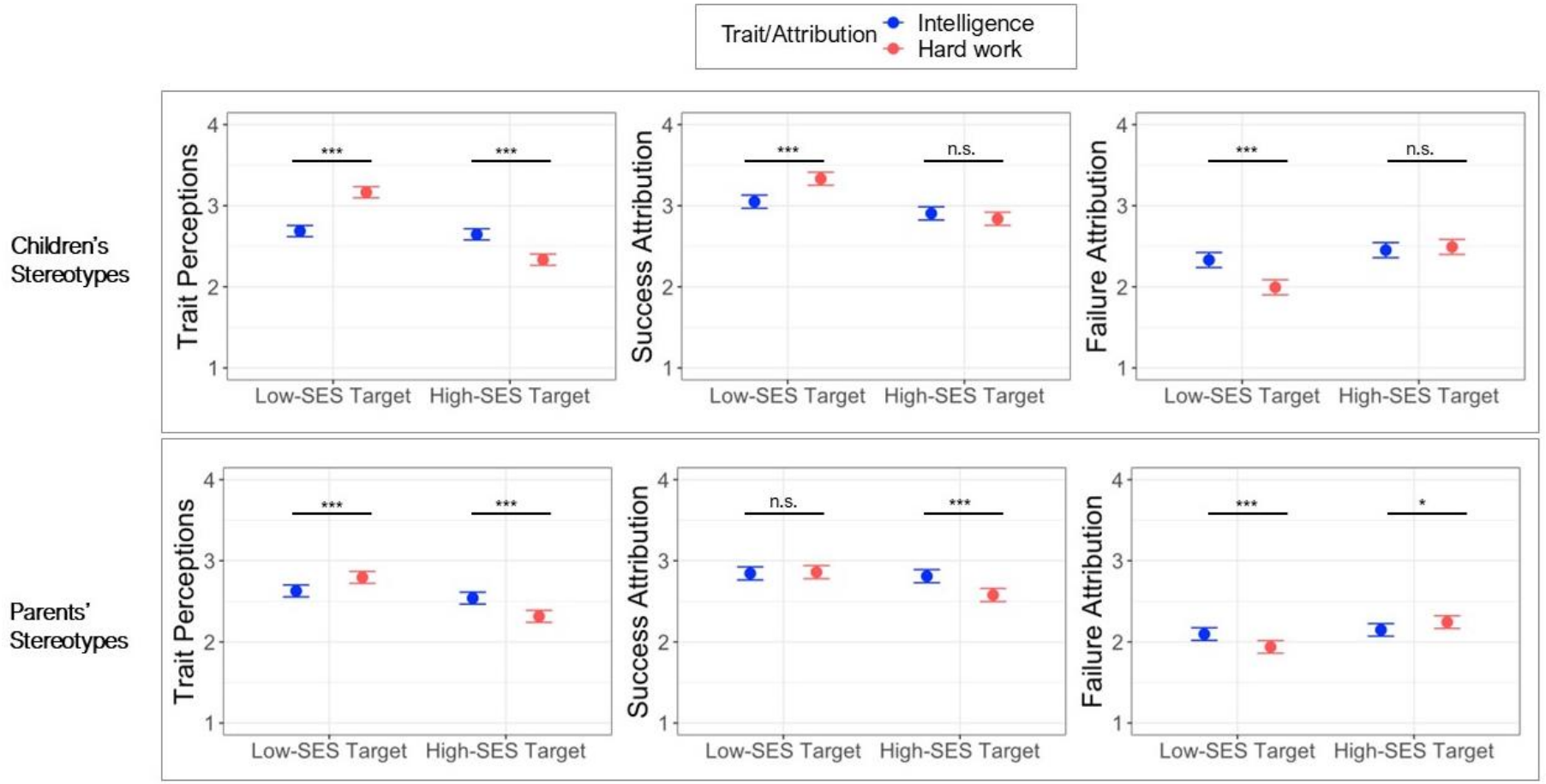
The Relation between Parents' and Children's SES Stereotypes: SEM Path Coefficients

Predictors	*β*	*SE*	LL CI	UL CI
Outcome: Parent Stereotype				
Parent Essentialist Beliefs	**0.16**	**0.07**	**0.02**	**0.29**
Parent Social Dominance Orientation	0.01	0.07	−0.12	0.16
Parent Belief in Meritocracy	−0.10	0.07	−0.23	0.03
Objective SES	0.01	0.08	−0.15	0.17
Parent Subjective SES	0.02	0.08	−0.14	0.18
Outcome: Child Stereotype				
Parent Essentialist Beliefs	0.01	0.09	−0.17	0.17
Parent Social Dominance Orientation	−0.03	0.09	−0.21	0.13
Parent Belief in Meritocracy	0.02	0.08	−0.13	0.19
Objective SES	**0.23**	**0.11**	**0.01**	**0.45**
Parent Subjective SES	−0.09	0.09	−0.26	0.08
Child Subjective SES	−0.02	0.08	−0.16	0.16
Parent Stereotype	**0.31**	**0.11**	**0.07**	**0.50**
Indirect Effects on Child SES Stereotypes (*Y*) through Parent SES Stereotypes (*M*)				
X = Parent Essentialist Beliefs	**0.05**	**0.03**	**0.002**	**0.12**
X = Parent Social Dominance Orientation	0.004	0.02	−0.04	0.05
X = Parent Belief in Meritocracy	−0.03	0.02	−0.08	0.01
X = Objective SES	0.002	0.03	−0.06	0.05
X = Parent Subjective SES	0.01	0.03	−0.04	0.06

Note. We report standardized estimates for all paths. CI = confidence interval; LL = lower limit of CI; UL = upper limit of CI. Level of confidence = 95%. Standard errors and 95% confidence intervals are based on 5,000 bootstrapped samples. Coefficients whose confidence intervals did not contain 0 (and were thus statistically significant) are bolded. *X* = independent variable. *M* = mediator. *Y* = dependent variable. Indirect effects: $X \rightarrow M \rightarrow Y$.

Figure 1

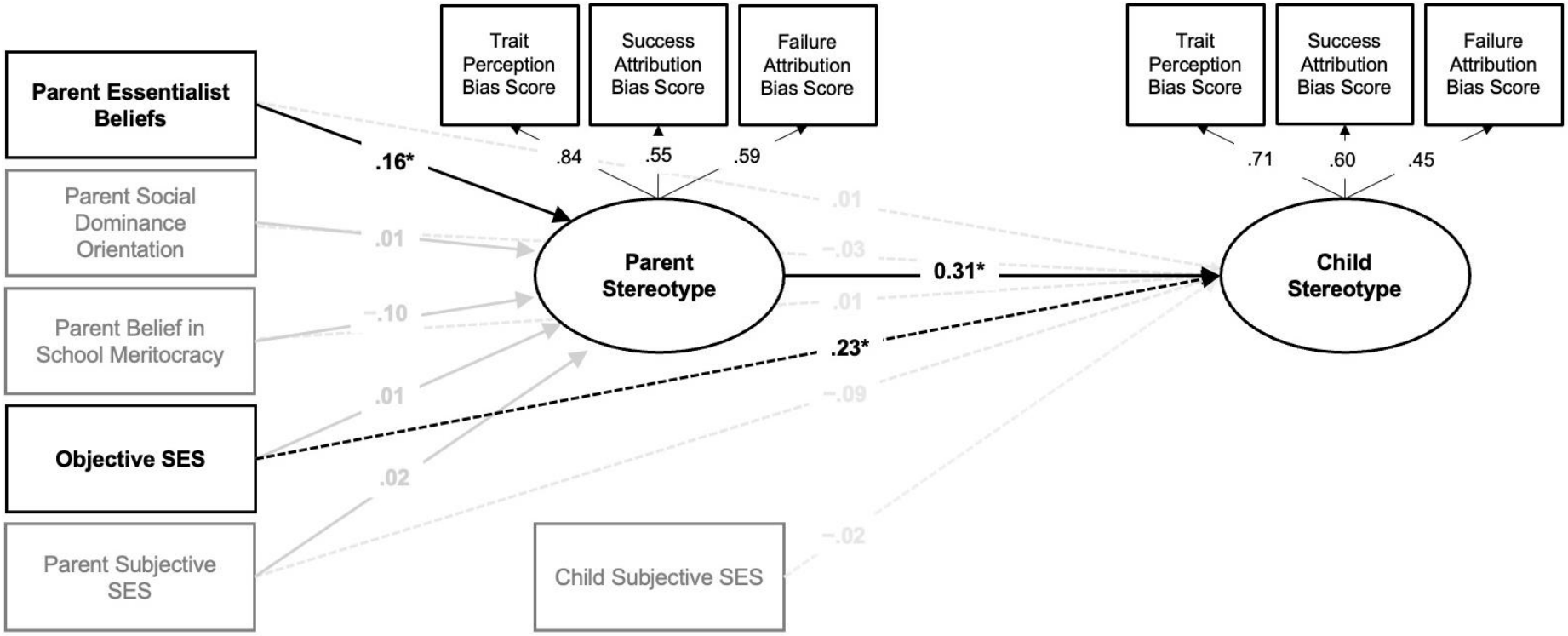
Children's and Parents' Trait Perceptions, Success Attributions, and Failure Attributions



Note. Plots represent predicted (or marginal) mean values, estimated via our mixed-effects models. Blue dots represent intelligence-related trait perceptions/attributions and red dots represent hard work-related trait perceptions/attributions. Bars represent 95% confidence intervals. $^{n.s.}p > .05$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Figure 2

Predicting Child SES Stereotype from Parental Beliefs, Objective and Subjective SES, and Parent SES Stereotype



Note. Parental beliefs were allowed to covary. Covariances are not displayed for parsimony. Ovals indicate latent variables (constructed via the structural equation model) and rectangles indicate observed variables. Solid lines indicate *a* paths (X → M) and the *b* path (M → Y), and dashed lines indicate *c* paths (X → Y) in the mediation model (*X* = independent variable. *M* = mediator. *Y* = dependent variable). All estimates, including factor loadings, are standardized estimates. We do not report associated significance levels for factor loadings because they are not available for all loadings—the unstandardized factor loading of the first indicator is set to 1 by default by the *lavaan* package, so no significance level can be estimated for that factor loading. Statistical significance for all other estimates was determined based on whether bootstrapped 95% confidence intervals contained 0.

Supplemental Materials for

More Hardworking Than Smart: Nature and Origins of Stereotypes About Children from Socioeconomically Disadvantaged Backgrounds

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Contents

Supplemental Note 1: Vignettes

We presented participants with vignettes that described a hypothetical child's SES (high, low) and school performance (success, failure). The description of SES was modeled after previous work (Sigelman, 2012). On our OSF page, we provide the exact illustrations, as well as a file that outlines the randomization across vignettes.

High SES

The family of [name] is rich and has a lot of money. The house [name] lives in is big and new. The parents, brothers, and sisters of [name] live there too. You can see that it's a very big house. It has 12 rooms, and it has a big swimming pool in the backyard. Things are new at the house. The family of [name] has two cars, one sports car and another big new car. The family of [name] has a lot of money, so [name] can buy a lot of new things. The backpack and shoes of [name] are new and expensive. The parents of [name] have a lot of money, so they often take [name] on trips and vacations. The family of [name] has enough money for all of the food they want, so [name] gets to eat lots of tasty and healthy food.

Low SES

The family of [name] is poor and has very little money. The house [name] lives in is small and old. The parents, brothers, and sisters of [name] live there too. You can see that it's a very little house. Things are old and worn out at the house. The family of [name] has one small car. It is old and often breaks down. The family of [name] doesn't have a lot of money, so [name] can't buy a lot of new things. The backpack and shoes of [name] are old and worn out. De ouders van Robin hebben ook niet genoeg geld om met Robin op reisjes of op vakantie te gaan. The parents of [Robin] don't have enough money to take Robin on trips and vacations. Sometimes the family of [name] doesn't have enough money for all the food they want, so [name] eats little tasty or healthy food.

Success

Recently, [name] had an important test at school. All the children in the class of [name] took the same test. [Name] did very well on the test. [Name] had one of the highest grades in his class.

Failure

Recently, [name] had an important test at school. All the children in the class of [name] took the same test. [Name] did very poorly on the test. [Name] had one of the lowest grades in the class.

Supplemental Note 2: Robustness Checks—Checking for Outliers; Checking for Moderation by Age, Gender, Vignette Version, and Vignette Order

For each gender, we created two versions of the vignette. We presented the vignettes in randomized order. To examine the robustness of our analyses, we examined whether results were affected by outliers or moderated by participant age, participant gender, vignette version, and vignette order.

Children

There were no multivariate outliers (all Cook's distances < 1). There were no main effects of or interaction effects involving gender or vignette version. There were two significant interaction effects of age. For children's trait perceptions, there was a significant two-way interaction between child age and the target SES, b = -0.07, p = .005. Older children viewed children from low-SES backgrounds as more hardworking *and* intelligent than did younger children, b = 0.07, p < .001. Older and younger children did not differ in their perceptions of children from high-SES backgrounds, b = 0.0002, p = .992. For children's success attributions, there was a significant two-way interaction between child age and trait, b = 0.07, p = .003. Younger children attributed the success of children from both low- and high-SES backgrounds more to hard work than to intelligence, b = -0.21, p < .001. Older children did not differ in the overall attribution of success to hard work versus intelligence, b = -0.009, p = .850. There was one effect involving vignette order. For children's trait perceptions, there was a significant main effect of vignette order, χ^2 (23) = 36.36, p = .038. Importantly, however, after including vignette order as a covariate in our main analyses, our results did not change (i.e., no significant effect became nonsignificant or changed in direction, and no nonsignificant effect became significant; see Tables S9 and S10 for trait perceptions, Tables S13 and S14 for success attributions, and S17 and S18 for failure attributions).

Parents

There were no multivariate outliers (all Cook's distances < 1). There were no main effects of or interaction effects involving vignette version.

There were two effects involving parent gender. For parents' trait perceptions, there was a significant two-way interaction between parent gender and target SES, b = -0.09, p = .047. Mothers viewed children from low-SES backgrounds as more hardworking *and* intelligent than did fathers, b = -0.18, SE = 0.07, p = .010. Mothers and fathers did not differ in their perceptions of children from high-SES backgrounds, b = -0.09, SE = 0.07, p = .211. For parents' success attributions, there was a main effect of parent gender. Mothers attributed the success of children from both low- and high-SES backgrounds more to hard work and intelligence than did fathers, b = 0.15, p = .036.

There was one effect involving parent age. For parents' trait perceptions, there was a two-way interaction between parent age and vignette SES, b = -0.01, p = .002. Overall, children from low-SES backgrounds were seen as more hardworking *and* intelligent than were children from high-SES backgrounds. Yet, this effect was more pronounced in older parents (+1 SD of age), b = 0.35, SE = 0.03, p < .001, than in younger parents (-1 SD of age), b = 0.21, SE = 0.03, p < .001.

There were two effects involving vignette order. There was a significant main effect of vignette order on parents' trait perceptions and success attributions, χ^2 (23) = 84.84, p < .001, and χ^2 (23) = 62.42, p < .001, respectively. Importantly, however, after including vignette order as a covariate in our main analyses, our results did not change (i.e., no significant effect became nonsignificant or changed in direction, and no nonsignificant effect became significant; see Tables S11 and S12 for trait perceptions, Tables S15 and S16 for success attributions, and S19 and S20 for failure attributions).

Full Model

For children and parents separately, we ran a full model with all covariates (i.e., age, gender, vignette version, and order) for trait perceptions, success attributions, and failure attributions. Our results did not change (i.e., no significant effect became nonsignificant or changed in direction, and no nonsignificant effect became significant; see Tables S10, S12, S14, S16, S18, S20)

Supplemental Note 3: Robustness Checks—Alternative Strategies for Calculating Stereotype Scores

In our primary SEM models, reported in the main text, we estimated children's and parents' "low SES = more hardworking than smart" stereotypes as latent factors, with trait perception, success attribution, and failure attribution bias scores as observed indicators. One could argue that bias scores are imprecise because they combine multiple variables into a single score, leading to a loss of information and specificity. To examine the robustness of our results, we first reran the models using raw scores, separately for trait perceptions, success attributions, and failure attributions. These models turned out to be extremely complex, including 99 parameters and 80 indirect effects each. Due to this lack of parsimony, their fit was poor: $\chi^2(20) = 606.11$, $p < .001$, CFI = 0.23, TLI = 0.00, RMSEA = 0.34, SRMR = 0.14 for trait perceptions; $\chi^2(20) = 521.36$, $p < .001$, CFI = 0.32, TLI = 0.00, RMSEA = 0.32, SRMR = 0.14 for success attributions; and $\chi^2(20) = 349.05$, $p < .001$, CFI = 0.44, TLI = 0.00, RMSEA = 0.26, SRMR = 0.11 for failure attributions (Hu & Bentler, 1999). As the fit statistics make clear, these models are statistically unreliable.

Intra-SES Stereotypes

To avoid the unnecessary complexity and poor fit of the models with raw scores, we adopted a strategy that avoids bias scores but still yields parsimonious models: We calculated *intra-SES stereotype scores* (i.e., the extent to which low-SES and, separately, high-SES children were seen as more hardworking than smart). We calculated these stereotypes separately for trait perceptions, success attributions, and failure attributions. Thus, rather than estimating a single stereotype/bias score (with trait perception, success attribution, and failure attribution bias scores as observed indicators, as we did in our primary SEM models), we created intra-SES stereotype scores, separately for children and parents and for each of the three measures, capturing (a) the extent to which participants perceived low-SES children as more hardworking than intelligent (i.e., low-SES stereotype), and (b) the extent to which participants perceived high-SES children as more hardworking than intelligent (i.e., high-SES stereotype). Intra-SES stereotype scores in the domain of failure attributions were reverse coded, with higher scores reflecting a tendency to attribute failure

to a lack of smartness than a lack of hard work. Intra-SES stereotype scores in the domain of trait perceptions and success attributions were *not* reverse coded, with higher scores reflecting a tendency to perceive children as more hardworking than smart and to attribute their success to hard work more than smartness, respectively. Figure S1 summarizes the models.

We conducted three separate models: one for trait perceptions, one for success attributions, and one for failure attributions. In each model, we included the low- and high-SES stereotype scores simultaneously, and we examined (a) associations between parents' beliefs, parents' intra-SES stereotypes, and children's intra-SES stereotypes, as well as (b) indirect paths from parents' beliefs to children's intra-SES stereotypes through parents' intra-SES stereotypes.

In these same models, we regressed parents' intra-SES stereotypes on parental beliefs (i.e., essentialist beliefs about SES, belief in school meritocracy, and social dominance orientation) and parent SES (both objective and subjective), and children's intra-SES stereotypes on parental beliefs, parental SES (both objective and subjective), parent's intra-SES stereotypes, and child subjective SES. We standardized predictors prior to inclusion in the model.

We fit the models using the *lavaan* package in R (Rosseel, 2012). We used maximum likelihood estimation with robust standard errors (MLR) and imputed missing data using full-information maximum likelihood (FIML). Only two observations were missing: child age (n = 1) and parents' intra-SES stereotypes (n = 1). We computed bootstrapped confidence intervals for direct and indirect effects (Hayes & Scharkow, 2013). We report standardized estimates.

These models were less complex, including 52 parameters and 20 indirect effects each. The fit was reasonable for all models: the trait perceptions model, $\chi^2(13) = 17.30$, $p = .186$, CFI = 0.89, TLI = 0.63, RMSEA = 0.04, SRMR = 0.03; the success attribution model, $\chi^2(12) = 9.68$, $p = .644$, CFI = 1.00,

TLI = 1.00, RMSEA = 0.00, SRMR = 0.03;[3] and the failure attribution model, $\chi^2(13) = 16.67$, $p = .215$, CFI = 0.86, TLI = 0.56, RMSEA = 0.03, SRMR = 0.03 (Hu & Bentler, 1999).

These models enabled us to answer three key questions. First, we asked which parental beliefs (i.e., essentialist beliefs about SES, belief in school meritocracy, and social dominance orientation) were associated with parents' intra-SES stereotypes. Parental essentialist beliefs about SES were related to stronger (a) parental perceptions of low-SES children (but not high-SES children) as more hardworking than smart, β = 0.13, bootstrapped 95% CI [0.01, 0.25]; (b) stronger parental attributions of low-SES children's (but not high-SES children's) success to hard work than smartness, β = 0.13, bootstrapped 95% CI [0.02, 0.26]; and (c) stronger attributions of high-SES children's (but not low-SES children's) failure to a lack of hard work than a lack of smartness, β = -0.13, bootstrapped 95% CI [-0.25, -0.001]. Parental belief in meritocracy was related to stronger parental attributions of low-SES children's (but not high-SES children's) failure to lack of hard work than lack of smartness, β = -0.17, bootstrapped 95% CI [-0.29, -0.06], but it was not significantly related to stereotypes in the domain of trait perceptions or success attributions. Parental social dominance orientation, objective SES, and subjective SES were not significantly related to parental stereotypes (all bootstrapped 95% CIs contained zero).

Second, we asked whether parental beliefs, objective SES, parent and child subjective SES, and parental intra-SES stereotypes were associated with children's intra-SES stereotypes. Parents' objective SES was related to children's weaker perceptions of high-SES children (but not low-SES children) as more hardworking than smart, β = -0.18, bootstrapped 95% CI [-0.35, -0.02], stronger attributions of high-SES children's failure to lack of hard work more than smartness, β = -0.16, bootstrapped 95% CI [-0.29, -0.02], and stronger attributions of low-SES children's failure to a lack of

[3] This model includes an additional covariance parameter between the latent variables for parents' intra-SES success attributions for low- and high-SES targets. Without this additional parameter, model fit was unacceptable. Including an analogous covariance in the models for trait perceptions and failure attributions leaves their results unchanged.

smartness more than a lack of hard work, β = 0.15, bootstrapped 95% CI [0.002, 0.30]. In addition, parents' attributions of low-SES children's (but not high-SES children's) success to hard work than smartness were related to children's attributions of low-SES children's (but not high-SES children's) success to hard work, β = 0.16, bootstrapped 95% CI [0.05, 0.27]. Other parental intra-SES stereotypes, parental essentialist beliefs about SES, belief in school meritocracy, social dominance orientation, parents' subjective SES, and children's subjective SES were not significantly related to children's intra-SES stereotypes (all bootstrapped 95% CIs contained zero).

Third, we asked whether parents' intra-SES stereotypes mediated the associations of parental beliefs, objective SES, and subjective SES with children's intra-SES stereotypes. In the domain of success attributions, there was a significant indirect association between parental essentialist beliefs about SES and children's intra-SES stereotypes via parents' intra-SES stereotypes, β = 0.02, bootstrapped 95% CI [0.002, 0.05]. Thus, parents with stronger essentialist beliefs about SES were more inclined to attribute low-SES children's success to hard work than smartness; those who were more inclined to make this attribution, in turn, had children who were too. There were no other significant indirect associations (all bootstrapped 95% CIs contained zero).

Discussion

The current results are consistent with our primary SEM models (as reported in the main text) but reveal a more fine-grained pattern. First, the primary SEM models showed an indirect association between parental essentialist beliefs about SES and children's stereotypes via parents' stereotypes. The current results show that this indirect association was unique to intra-SES stereotypes in the domain of success attributions: Parents with stronger essentialist beliefs about SES more strongly attributed the success of low-SES children to hard work relative to intelligence; those who made these attributions, in turn, had children who did too.

Second, the primary SEM models showed that children from higher SES backgrounds more strongly endorsed the "low SES = more hardworking than smart" stereotype. The current results show that objective SES was related most strongly to children's tendency (a) to perceive high-SES

children as less hardworking than smart, (b) to attribute high-SES children's failure to a lack of hard work more than lack of smartness, and (c) to attribute low-SES children's failure to a lack of smartness more than a lack of hard work.

Third, the primary SEM models showed that parental belief in meritocracy was not significantly related to parents' "low SES = more hardworking than smart" stereotype. The current results show that parental belief in meritocracy was related to parents' stronger tendency to attribute low-SES children's failure to lack of hard work more than lack of smartness.

Supplemental Note 4: Analyses Comparing High and Low SES Within Traits

Our main analyses compare intelligence and hard work within high and low SES. Here, for exploratory purposes, we compare high and low SES within intelligence and hard work.

Children

Children viewed low-SES children as more hardworking, $b = 0.83$, $SE = 0.05$, $p < .001$, but not as significantly more or less intelligent, $b = 0.04$, $SE = 0.05$, $p = .384$, than high-SES children. Children attributed the success of children from low-SES backgrounds more to hard work and more to intelligence than the success of children from high-SES backgrounds, $b = 0.50$, $SE = 0.05$, $p < .001$, and $b = 0.15$, $SE = 0.05$, $p < .001$, respectively. Children attributed the failure of children from low-SES backgrounds less to a lack of hard work and less to a lack of intelligence than the failure of children from high-SES backgrounds, $b = -0.50$, $SE = 0.06$, $p < .001$, and $b = -0.12$, $SE = 0.06$, $p = .034$, respectively.

Parents

Parents viewed children from low-SES backgrounds as more hardworking *and* more intelligent than children from high-SES backgrounds, $b = 0.48$, $SE = 0.03$, $p < .001$, and $b = 0.08$, $SE = 0.03$, $p = .006$, respectively. Parents attributed the success of children from low-SES backgrounds more to hard work, $b = 0.28$, $SE = 0.04$, $p < .001$, but not significantly more or less to intelligence, $b = 0.03$, $SE = 0.04$, $p = .343$, than the success of children from high-SES backgrounds. Parents attributed the failure of children from low-SES backgrounds less to a lack of hard work, $b = -0.31$, $SE = 0.04$, $p < .001$, but not significantly more or less to intelligence, $b = -0.05$, $SE = 0.04$, $p = .172$, than the failure of children from high-SES backgrounds.

Sensitivity Power Analyses (Table S1)

Table S1

Sensitivity Power Analyses for Testing the Interaction Between Trait (Intelligence, Hard Work) and Target Socioeconomic Status (High, Low)

Model	Observed interaction effect (unstandardized)	Observed interaction effect (standardized)	Observed power	Minimum detectable interaction effect (standardized) with 80% power
Child Trait Perceptions	0.79	1.25	100%	0.31
Child Success Attributions	0.35	0.51	100%	0.30
Child Failure Attributions	-0.38	-0.49	99.4%	-0.30
Parent Trait Perceptions	0.39	0.64	100%	0.22
Parent Success Attributions	0.25	0.38	100%	0.23
Parent Failure Attributions	-0.25	-0.40	99.7%	-0.25

Note. The estimates of power and minimum detectable effects were based on a sample size of 250 (the total sample minus one participant with completely missing data for parental stereotypes) and 10,000 simulations.

Values Used to Calculate Objective SES Scores (Table S2)

Table S2

Values Used to Calculate Objective SES Scores

Measured Values	Value Used for Data Analyses
Educational level	
1. Primary education	22.5[1]
2. Pre-vocational secondary education – basic/career-oriented (VMBO-b/k)	29.3[1]
3. Pre-vocational secondary education – theoretical/mixed (VMBO-g/t)	45.2[1]
4. Lower years of senior general secondary education (HAVO)	34.7[2]
5. Lower years of pre-university education (VWO)	34.7[2]
6. Secondary vocational education level 1 (MBO1)	45.6[1]
7. Secondary vocational education level 2 (MBO2)	45.6[1]
8. Secondary vocational education level 3 (MBO3)	52.7[1]
9. Secondary vocational education level 4 (MBO4)	52.7[1]
10. Senior general secondary education (HAVO)	62.3[1]
11. Pre-university education (VWO)	72.0[1]
12. Bachelor's degree at a university of applied sciences (HBO)	72.5[3]
13. Bachelor's degree at a university	80.0[4]
14. Master's degree at a university of applied sciences	77.9[1]
15. Master's degree at a research university	88.1[1]
16. Doctorate (PhD or Dr.)	94.6[1]
Occupation[5]	
1. Agricultural occupation (salaried)	17
Agricultural occupation (self-employed)	26
2. Unskilled and semi-skilled manual labor	23
3. Semi-skilled manual labor	28
4. Skilled and supervisory manual labor	43
5. Other non-manual labor	48
6. Mid-level managerial or commercial occupation (salaried)	54
Mid-level managerial or commercial occupation (self-employed)	53
7. Mid-level intellectual or liberal profession	61
8. Higher-level managerial occupation	72
9. Higher-level intellectual or liberal profession	82
Monthly net income in euros	
1. 0-499	249.5
2. 500-999	749.5
3. 1000-1499	1249.5
4. 1500-1999	1749.5

5. 2000-2499	2249.5
6. 2500-2999	2794.5
7. 3000-3499	3249.5
8. 3500-3999	3749.5
9. 4000-4499	4249.5
10. 4500-4999	4749.5
11. 5000-5999	5499.5
12. 6000-6999	6499.5
13. 7000-7999	7499.5
14. 8000-8999	8499.5
15. 9000-9999	9499.5
16. 10000-10999	10499.5
17. 11000-12999	11999.5
18. 13000-15999	14499.5
19. 16000-19999	17999.5
20. more than €20,000, namely:	[free entry]

[1]Based on Appendix 4.A (Schröder, 2014).
[2]Considered as part of ISCED 3: >= 2 years general, no access ISCED; Based on Table 1 (Ganzeboom & Schröder, 2016).
[3]Considered HBO-BA; Based on Table 1 (Ganzeboom & Schröder, 2016).
[4]Considered WO-BA; Based on Table 1 (Ganzeboom & Schröder, 2016).
[5]Values based on Vries and Ganzeboom (2008), offering separate values for self-employed and salaried individuals only for categories 1 and 6. After entering their occupation category, all participants indicated whether they were self-employed or salaried.

Correlations Between Items (Tables S3–S8)

Table S3

Correlations Among Children's Ratings of Individual Trait Perception Items

Item 1	Item 2	Pearson's Correlation
High-SES 1 smart	High-SES 1 intelligent	.56***
High-SES 2 smart	High-SES 2 intelligent	.48***
Low-SES 1 smart	Low-SES 1 intelligent	.50***
Low-SES 2 smart	Low-SES 2 intelligent	.59***
High-SES 1 hard worker	High-SES 1 go-getter	.60***
High-SES 2 hard worker	High-SES 2 go-getter	.52***
Low-SES 1 hard worker	Low-SES 1 go-getter	.55***
Low-SES 2 hard worker	Low-SES 2 go-getter	.58***

Note. Correlations are listed by target (High- or Low-SES and target 1 or 2) and item (smart, intelligent, hard worker, or go-getter). Targets are not differentiated based on success and failure status as trait perceptions were rated prior to learning success- or failure-related information. ***p < .001.

Table S4

Correlations Among Parents' Ratings of Individual Trait Perception Items

Item 1	Item 2	Pearson's Correlation
High-SES 1 smart	High-SES 1 intelligent	.94***
High-SES 2 smart	High-SES 2 intelligent	.94***
Low-SES 1 smart	Low-SES 1 intelligent	.94***
Low-SES 2 smart	Low-SES 2 intelligent	.94***
High-SES 1 hard worker	High-SES 1 go-getter	.94***
High-SES 2 hard worker	High-SES 2 go-getter	.92***
Low-SES 1 hard worker	Low-SES 1 go-getter	.92***
Low-SES 2 hard worker	Low-SES 2 go-getter	.93***

Note. Correlations are listed by target (High- or Low-SES and target 1 or 2) and item (smart, intelligent, hard worker, or go-getter). Targets are not differentiated based on success and failure status as trait perceptions were rated prior to learning success- or failure-related information. ***p < .001.

Table S5

Correlations Among Children's Ratings of Individual Success Attribution Items

Item 1	Item 2	Pearson's Correlation
High-SES smart	High-SES intelligent	.50***
Low-SES smart	Low-SES intelligent	.45***
High-SES hard worker	High-SES go-getter	.50***
Low-SES hard worker	Low-SES go-getter	.57***

Note. Correlations are listed by target (High- or Low-SES) and item (smart, intelligent, hard worker, or go-getter). ***$p < .001$.

Table S6

Correlations Among Parents' Ratings of Individual Success Attribution Items

Item 1	Item 2	Pearson's Correlation
High-SES smart	High-SES intelligent	.94***
Low-SES smart	Low-SES intelligent	.95***
High-SES hard worker	High-SES go-getter	.90***
Low-SES hard worker	Low-SES go-getter	.97***

Note. Correlations are listed by target (High- or Low-SES) and item (smart, intelligent, hard worker, or go-getter). ***$p < .001$.

Table S7

Correlations Among Children's Ratings of Individual Failure Attribution Items

Item 1	Item 2	Pearson's Correlation
High-SES smart	High-SES intelligent	.45***
Low-SES smart	Low-SES intelligent	.63***
High-SES hard worker	High-SES go-getter	.61***
Low-SES hard worker	Low-SES go-getter	.65***

Note. Correlations are listed by target (High- or Low-SES) and item (smart, intelligent, hard worker, or go-getter). ***$p < .001$.

Table S8

Correlations Among Parents' Ratings of Individual Failure Attribution Items

Item 1	Item 2	Pearson's Correlation
High-SES smart	High-SES intelligent	.96***
Low-SES smart	Low-SES intelligent	.92***
High-SES hard worker	High-SES go-getter	.94***
Low-SES hard worker	Low-SES go-getter	.91***

Note. Correlations are listed by target (High- or Low-SES) and item (smart, intelligent, hard worker, or go-getter). ***$p < .001$.

Results from Robustness Checks (Tables S9–S20)

Table S9

Results of Robustness Tests for Children's Trait Perceptions: Age, Gender, Vignette Version

	Robustness Test 1 Interacting Child Age			**Robustness Test 2 Interacting Child Gender**			**Robustness Test 3 Controlling for Vignette Version**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	2.71	0.02	**<0.001**	2.71	0.02	**<0.001**	2.72	0.03	**<0.001**
Trait	-0.08	0.03	**0.012**	-0.08	0.03	**0.012**	-0.08	0.03	**0.012**
Vignette SES	-0.44	0.03	**<0.001**	-0.44	0.03	**<0.001**	-0.44	0.03	**<0.001**
Trait × Vignette SES	0.79	0.07	**<0.001**	0.79	0.07	**<0.001**	0.79	0.07	**<0.001**
Age	0.03	0.01	**0.019**						
Trait × Age	0.04	0.02	0.130						
Vignette SES x Age	-0.07	0.02	**0.004**						
Trait × Vignette SES × Age	0.01	0.05	0.844						
Gender				0.05	0.04	0.183			
Trait × Gender				-0.04	0.07	0.558			
Vignette SES × Gender				0.09	0.07	0.195			
Trait × Vignette SES × Gender				-0.07	0.13	0.574			
Vignette version							-0.03	0.04	.466
	SD			*SD*			*SD*		
Participant Random Intercept	0.52			0.53			0.53		
N	250			251			251		
Observations	1000			1004			1004		
Marginal R^2 / Conditional R^2	0.234 / 0.319			0.224 / 0.311			0.221 / 0.310		

Note. Estimates (with standard errors) and goodness-of-fit statistics for three separate linear mixed effects models of children's traits perceptions that test for moderation by child age (mean-centered), child gender (girls = 0.48, boys = -0.52), and control for vignette version (factor with 2 levels: 1 or 2) respectively. In each model, children's trait perceptions are regressed on the trait (smart = 0.5, hardworking = −0.5), vignette SES (rich = 0.5; poor = −0.5), and their interaction. "Vignette version" refers to the version of the gender-matched vignettes that participants saw.

Table S10

Results of Robustness Tests for Children's Trait Perceptions: Vignette Order, All Covariates Included

	Robustness Test 4 Controlling for Vignette Order			**Robustness Test 5 All Robustness Checks**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	2.68	0.10	**<0.001**	2.69	0.10	**<0.001**
Trait	-0.08	0.03	**0.012**	-0.08	0.03	**0.013**
Vignette SES	-0.44	0.03	**<0.001**	-0.44	0.03	**<0.001**
Trait × Vignette SES	0.79	0.07	**<0.001**	0.79	0.07	**<0.001**
Age				0.03	0.01	**0.024**
Gender				0.07	0.04	0.110
Vignette version				-0.03	0.04	0.436
order [1243]	0.12	0.13	0.346	0.14	0.13	0.271
order [1324]	-0.02	0.17	0.913	0.02	0.17	0.887
order [1342]	-0.05	0.14	0.733	-0.04	0.14	0.758
order [1423]	-0.09	0.13	0.521	-0.09	0.13	0.482
order [1432]	-0.08	0.13	0.567	-0.04	0.13	0.751
order [2134]	-0.13	0.13	0.338	-0.09	0.13	0.506
order [2143]	0.03	0.13	0.841	0.001	0.13	0.997
order [2314]	0.001	0.13	0.994	0.02	0.13	0.889
order [2341]	0.19	0.13	0.137	0.21	0.13	0.112
order [2413]	-0.01	0.15	0.940	-0.01	0.15	0.937
order [2431]	0.05	0.14	0.722	0.06	0.14	0.675
order [3124]	0.01	0.14	0.927	0.003	0.14	0.982
order [3142]	0.17	0.14	0.214	0.19	0.14	0.171
order [3214]	-0.36	0.17	**0.039**	-0.33	0.17	0.057
order [3241]	-0.02	0.13	0.893	-0.03	0.13	0.848
order [3412]	-0.1	0.13	0.452	-0.08	0.13	0.525
order [3421]	-0.04	0.14	0.756	-0.03	0.14	0.846

order [4123]	0.14	0.13	0.293	0.16	0.13	0.221
order [4132]	-0.09	0.15	0.553	-0.05	0.15	0.725
order [4213]	0.21	0.14	0.125	0.20	0.14	0.135
order [4231]	0.24	0.14	0.104	0.26	0.14	0.068
order [4312]	0.06	0.13	0.637	0.07	0.13	0.616
order [4321]	0.15	0.15	0.325	0.12	0.15	0.402
	SD			*SD*		
Participant Random Intercept	0.53			0.53		
N	251			250		
Observations	1004			1000		
Marginal R^2 / Conditional R^2	0.251 / 0.325			0.258 / 0.327		

Note. Estimates (with standard errors) and goodness-of-fit statistics for two separate linear mixed effects models of children's traits perceptions that control for order of vignettes (factor with 24 levels) and all covariates (child age, child gender, vignette version, and order), respectively. In each model, children's trait perceptions are regressed on the trait (smart = 0.5, hardworking = −0.5), vignette SES (rich = 0.5; poor = −0.5), and their interaction. "Vignette version" refers to the version of the gender-matched vignettes that participants saw. The reference category for order is [1234], such that 1 = rich successful target, 2 = rich failure target, 3 = poor successful target, 4 = poor failure target.

Table S11

Results of Robustness Tests for Parents' Trait Perceptions: Parent Age, Parent Gender, Vignette Version

	Robustness Test 1 Interacting Parent Age			**Robustness Test 2 Interacting Parent Gender**			**Robustness Test 3 Controlling for Vignette Version**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	2.57	0.03	**<0.001**	2.57	0.03	**<0.001**	2.59	0.05	**<0.001**
Trait	0.03	0.02	0.197	0.03	0.02	0.200	0.03	0.02	0.199
Vignette SES	-0.28	0.02	**<0.001**	-0.28	0.02	**<0.001**	-0.28	0.02	**<0.001**
Trait × Vignette SES	0.39	0.04	**<0.001**	0.39	0.05	**<0.001**	0.39	0.05	**<0.001**
Age	-0.003	0.01	0.679						
Trait × Age	0.002	0.01	0.655						
Vignette SES × Age	-0.01	0.01	**0.002**						
Trait × Vignette SES × Age	-0.01	0.01	0.195						
Gender				0.13	0.06	**0.043**			
Trait × Gender				0.02	0.05	0.715			
Vignette SES × Gender				-0.09	0.05	**0.047**			
Trait × Vignette SES × Gender				0.05	0.09	0.619			
Vignette version							-0.05	0.05	0.437
	SD			*SD*			*SD*		
Participant Random Intercept	0.36			0.36			0.36		
N	250			250			250		
Observations	1000			1000			1000		
Marginal R^2 / Conditional R^2	0.083 / 0.671			0.091 / 0.668			0.080 / 0.667		

Note. Estimates (with standard errors) and goodness-of-fit statistics for three separate linear mixed effects models of parents' traits perceptions that test for moderation by parent age (mean-centered), parent gender (women = 0.42, men = -0.58), and control for vignette version (factor with 2 levels: 1 or 2) respectively. In each model, parents' trait perceptions are regressed on the trait (smart = 0.5, hardworking = −0.5), vignette SES (rich = 0.5; poor = −0.5), and their interaction. "Vignette version" refers to the version of the gender-matched vignettes that participants saw.

Table S12

Results of Robustness Tests for Parents' Trait Perceptions: Vignette Order, All Covariates Included

	Robustness Test 4 Controlling for Vignette Order			**Robustness Test 5 All Robustness Checks**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	2.31	0.18	**<0.001**	2.37	0.19	**<0.001**
Trait	0.03	0.02	0.199	0.03	0.02	0.199
Vignette SES	-0.28	0.02	**<0.001**	-0.28	0.02	**<0.001**
Trait × Vignette SES	0.39	0.05	**<0.001**	0.39	0.05	**<0.001**
Age				0.01	0.01	0.300
Gender				0.14	0.06	**0.026**
Vignette version				-0.02	0.06	0.734
order [1243]	0.24	0.22	0.276	0.17	0.22	0.439
order [1324]	0.34	0.27	0.219	0.28	0.28	0.305
order [1342]	0.17	0.22	0.455	0.11	0.22	0.635
order [1423]	0.11	0.23	0.631	0.06	0.24	0.816
order [1432]	0.19	0.25	0.457	0.13	0.26	0.612
order [2134]	-0.15	0.21	0.486	-0.20	0.21	0.358
order [2143]	-0.01	0.23	0.957	-0.05	0.23	0.823
order [2314]	0.45	0.23	0.055	0.42	0.23	0.075
order [2341]	0.09	0.23	0.689	0.06	0.24	0.799
order [2413]	0.37	0.22	0.091	0.32	0.22	0.149
order [2431]	0.55	0.23	**0.017**	0.49	0.23	**0.032**
order [3124]	0.01	0.24	0.977	-0.02	0.24	0.923
order [3142]	-0.05	0.23	0.831	-0.08	0.24	0.735
order [3214]	-0.47	0.29	0.109	-0.53	0.30	0.074
order [3241]	0.51	0.24	**0.038**	0.48	0.25	0.053
order [3412]	0.63	0.22	**0.005**	0.57	0.23	**0.011**
order [3421]	0.45	0.24	0.064	0.43	0.24	0.080

order [4123]	0.07	0.23	0.748	0.03	0.23	0.886
order [4132]	0.20	0.23	0.383	0.14	0.23	0.525
order [4213]	0.56	0.23	**0.016**	0.53	0.23	**0.023**
order [4231]	0.45	0.23	0.051	0.44	0.23	0.057
order [4312]	0.66	0.23	**0.004**	0.64	0.23	**0.006**
order [4321]	0.58	0.23	**0.013**	0.51	0.24	**0.032**
	SD			*SD*		
Participant Random Intercept	0.36			0.36		
N	250			249		
Observations	1000			1000		
Marginal R^2 / Conditional R^2	0.249 / 0.682			0.259 / 0.684		

Note. Estimates (with standard errors) and goodness-of-fit statistics for two separate linear mixed effects models of parents' traits perceptions that control for order of vignettes (factor with 24 levels) and all covariates (parent age, parent gender, vignette version, and order), respectively. In each model, parents' trait perceptions are regressed on the trait (smart = 0.5, hardworking = −0.5), vignette SES (rich = 0.5; poor = −0.5), and their interaction. "Vignette version" refers to the version of the gender-matched vignettes that participants saw. The reference category for order is [1234], such that 1 = rich successful target, 2 = rich failure target, 3 = poor successful target, 4 = poor failure target.

Table S13

Results of Robustness Tests for Children's Success Attributions: Age, Gender, Vignette Version

	Robustness Test 1 Interacting Child Age			**Robustness Test 2 Interacting Child Gender**			**Robustness Test 3 Controlling for Vignette Version**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	3.03	0.03	**<0.001**	3.03	0.03	**<0.001**	3.01	0.04	**<0.001**
Trait	-0.11	0.03	**0.001**	-0.11	0.03	**0.001**	-0.11	0.03	**0.001**
Vignette SES	-0.32	0.03	**<0.001**	-0.32	0.03	**<0.001**	-0.32	0.03	**<0.001**
Trait × Vignette SES	0.35	0.07	**<0.001**	0.35	0.07	**<0.001**	0.35	0.07	**<0.001**
Age	-0.0003	0.02	0.987						
Trait × Age	0.07	0.02	**0.003**						
Vignette SES × Age	-0.03	0.02	0.270						
Trait × Vignette SES × Age	0.01	0.05	0.860						
Gender				0.04	0.06	0.444			
Trait × Gender				-0.03	0.07	0.699			
Vignette SES × Gender				0.06	0.07	0.367			
Trait × Vignette SES × Gender				0.10	0.13	0.465			
Vignette version							0.03	0.06	0.564
	SD			*SD*			*SD*		
Participant Random Intercept	0.53			0.53			0.53		
N	250			251			251		
Observations	1000			1004			1004		
Marginal R^2 / Conditional R^2	0.085 / 0.393			0.080 / 0.385			0.079 / 0.385		

Note. Estimates (with standard errors) and goodness-of-fit statistics for three separate linear mixed effects models of children's success attributions that test for moderation by child age (mean-centered), child gender (girls = 0.48, boys = -0.52), and control for vignette version (factor with 2 levels: 1 or 2) respectively. In each model, children's success attributions are regressed on the trait (smart = 0.5, hardworking = −0.5), vignette SES (rich = 0.5; poor = −0.5), and their interaction. "Vignette version" refers to the version of the gender-matched vignettes that participants saw.

Table S14

Results of Robustness Tests for Children's Success Attributions: Vignette Order, All Covariates Included

	Robustness Test 4 Controlling for Vignette Order			**Robustness Test 5 All Robustness Checks**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	2.94	0.15	**<0.001**	2.94	0.15	**<0.001**
Trait	-0.11	0.03	**0.001**	-0.11	0.03	**0.001**
Vignette SES	-0.32	0.03	**<0.001**	-0.32	0.03	**<0.001**
Trait × Vignette SES	0.35	0.07	**<0.001**	0.35	0.07	**<0.001**
Age				-0.01	0.02	0.501
Gender				0.06	0.06	0.345
Vignette version				-0.01	0.06	0.818
order [1243]	0.13	0.19	0.473	0.13	0.19	0.478
order [1324]	-0.14	0.25	0.585	-0.14	0.25	0.570
order [1342]	-0.15	0.21	0.490	-0.16	0.21	0.448
order [1423]	-0.07	0.19	0.709	-0.08	0.19	0.683
order [1432]	-0.02	0.20	0.916	-0.02	0.20	0.903
order [2134]	-0.04	0.20	0.832	-0.05	0.20	0.821
order [2143]	0.14	0.20	0.491	0.13	0.20	0.514
order [2314]	0.03	0.20	0.874	0.04	0.20	0.850
order [2341]	0.12	0.19	0.542	0.14	0.19	0.481
order [2413]	-0.21	0.23	0.365	-0.21	0.23	0.347
order [2431]	0.15	0.21	0.465	0.15	0.21	0.477
order [3124]	0.13	0.21	0.532	0.14	0.21	0.526
order [3142]	0.23	0.21	0.274	0.24	0.21	0.251
order [3214]	0.11	0.25	0.655	0.12	0.25	0.629
order [3241]	0.16	0.19	0.412	0.18	0.20	0.362
order [3412]	0.03	0.19	0.862	0.05	0.20	0.782
order [3421]	0.16	0.21	0.429	0.19	0.21	0.368

order [4123]	0.43	0.20	**0.030**	0.44	0.20	**0.029**
order [4132]	-0.10	0.23	0.664	-0.08	0.23	0.733
order [4213]	0.18	0.20	0.380	0.17	0.20	0.408
order [4231]	0.13	0.21	0.532	0.13	0.21	0.536
order [4312]	0.31	0.20	0.112	0.33	0.20	0.100
order [4321]	0.25	0.22	0.252	0.27	0.22	0.223
	SD			*SD*		
Participant Random Intercept	0.53			0.54		
N	251			250		
Observations	1004			1000		
Marginal R^2 / Conditional R^2	0.118 / 0.409			0.120 / 0.413		

Note. Estimates (with standard errors) and goodness-of-fit statistics for two separate linear mixed effects models of children's success attributions that control for order of vignettes (factor with 24 levels) and all covariates (child age, child gender, vignette version, and order), respectively. In each model, children's success attributions are regressed on the trait (smart = 0.5, hardworking = −0.5), vignette SES (rich = 0.5; poor = −0.5), and their interaction. "Vignette version" refers to the version of the gender-matched vignettes that participants saw. The reference category for order is [1234], such that 1 = rich successful target, 2 = rich failure target, 3 = poor successful target, 4 = poor failure target.

Table S15

Results of Robustness Tests for Parents' Success Attributions: Parent Age, Parent Gender, Vignette Version

	Robustness Test 1 Interacting Parent Age			**Robustness Test 2 Interacting Parent Gender**			**Robustness Test 3 Controlling for Vignette Version**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	2.77	0.03	**<0.001**	2.77	0.03	**<0.001**	2.76	0.11	**<0.001**
Trait	0.11	0.03	**<0.001**	0.11	0.03	**<0.001**	0.11	0.03	**<0.001**
Vignette SES	-0.16	0.03	**<0.001**	-0.16	0.03	**<0.001**	-0.16	0.03	**<0.001**
Trait × Vignette SES	0.25	0.05	**<0.001**	0.25	0.05	**<0.001**	0.25	0.05	**<0.001**
Age	0.0002	0.01	0.979						
Trait × Age	-0.003	0.01	0.539						
Vignette SES × Age	-0.01	0.01	0.314						
Trait × Vignette SES × Age	-0.003	0.01	0.755						
Gender				0.15	0.07	**0.036**			
Trait × Gender				-0.03	0.05	0.519			
Vignette SES × Gender				0.01	0.05	0.794			
Trait × Vignette SES × Gender				0.05	0.10	0.599			
Vignette version							0.02	0.07	0.771
	SD			*SD*			*SD*		
Participant Random Intercept	0.40			0.40			0.40		
N	250			250			250		
Observations	1000			1000			1000		
Marginal R^2 / Conditional R^2	0.030 / 0.634			0.042 / 0.634			0.030 / 0.635		

Note. Estimates (with standard errors) and goodness-of-fit statistics for three separate linear mixed effects models of parents' success attributions that test for moderation by parent age (mean-centered), parent gender (women = 0.42, men = -0.58), and control for vignette version (factor with 2 levels: 1 or 2) respectively. In each model, parents' success attributions are regressed on the trait (smart = 0.5, hardworking = −0.5), vignette SES (rich = 0.5; poor = −0.5), and their interaction. "Vignette version" refers to the version of the gender-matched vignettes that participants saw.

Table S16

Results of Robustness Tests for Parents' Success Attributions: Vignette Order, All Covariates Included

	Robustness Test 4 Controlling for Vignette Order			**Robustness Test 5 All Robustness Checks**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	2.27	0.21	**<0.001**	2.28	0.22	**<0.001**
Trait	0.11	0.03	**<0.001**	0.11	0.03	**<0.001**
Vignette SES	-0.16	0.03	**<0.001**	-0.16	0.03	**<0.001**
Trait × Vignette SES	0.25	0.05	**<0.001**	0.25	0.05	**<0.001**
Age				0.002	0.01	0.807
Gender				0.12	0.07	0.086
Vignette version				0.02	0.07	0.786
order [1243]	0.69	0.25	**0.006**	0.65	0.25	**0.010**
order [1324]	0.68	0.31	**0.029**	0.65	0.31	**0.038**
order [1342]	0.60	0.25	**0.016**	0.58	0.25	**0.024**
order [1423]	0.52	0.26	0.051	0.50	0.27	0.064
order [1432]	0.50	0.29	0.082	0.48	0.29	0.095
order [2134]	0.33	0.24	0.168	0.31	0.24	0.201
order [2143]	0.17	0.26	0.529	0.15	0.27	0.575
order [2314]	0.74	0.26	**0.005**	0.73	0.27	**0.006**
order [2341]	-0.20	0.26	0.460	-0.20	0.27	0.464
order [2413]	0.75	0.25	**0.003**	0.73	0.25	**0.004**
order [2431]	0.68	0.26	**0.009**	0.65	0.26	**0.013**
order [3124]	0.20	0.27	0.456	0.19	0.27	0.487
order [3142]	0.32	0.26	0.232	0.33	0.27	0.223
order [3214]	0.17	0.33	0.615	0.16	0.34	0.635
order [3241]	0.56	0.28	**0.044**	0.56	0.28	**0.046**
order [3412]	0.80	0.25	**0.002**	0.78	0.26	**0.002**
order [3421]	0.43	0.28	0.119	0.43	0.28	0.120

order [4123]	0.28	0.26	0.273	0.27	0.26	0.301
order [4132]	0.44	0.26	0.088	0.41	0.26	0.111
order [4213]	0.78	0.26	**0.003**	0.77	0.27	**0.004**
order [4231]	0.64	0.26	**0.014**	0.64	0.26	**0.015**
order [4312]	0.70	0.26	**0.008**	0.70	0.26	**0.008**
order [4321]	0.79	0.26	**0.003**	0.75	0.27	**0.005**
	SD			*SD*		
Participant Random Intercept	0.40			0.40		
N	250			250		
Observations	1000			1000		
Marginal R^2 / Conditional R^2	0.170 / 0.653			0.176 / 0.655		

Note. Estimates (with standard errors) and goodness-of-fit statistics for two separate linear mixed effects models of parents' success attributions that control for order of vignettes (factor with 24 levels) and all covariates (parent age, parent gender, vignette version, and order), respectively. In each model, parents' success attributions are regressed on the trait (smart = 0.5, hardworking = −0.5), vignette SES (rich = 0.5; poor = −0.5), and their interaction. "Vignette version" refers to the version of the gender-matched vignettes that participants saw. The reference category for order is [1234], such that 1 = rich successful target, 2 = rich failure target, 3 = poor successful target, 4 = poor failure target.

Table S17

Results of Robustness Tests for Children's Failure Attributions: Age, Gender, Vignette Version

	Robustness Test 1 Interacting Parent Age			**Robustness Test 2 Interacting Parent Gender**			**Robustness Test 3 Controlling for Vignette Version**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	2.32	0.03	**<0.001**	2.32	0.03	**<0.001**	2.27	0.05	**<0.001**
Trait	0.15	0.04	**<0.001**	0.15	0.04	**<0.001**	0.15	0.04	**<0.001**
Vignette SES	0.31	0.04	**<0.001**	0.31	0.04	**<0.001**	0.31	0.04	**<0.001**
Trait × Vignette SES	-0.38	0.08	**<0.001**	-0.38	0.08	**<0.001**	-0.38	0.08	**<0.001**
Age	-0.01	0.02	0.622						
Trait × Age	-0.03	0.03	0.221						
Vignette SES × Age	0.01	0.03	0.837						
Trait × Vignette SES × Age	-0.07	0.06	0.189						
Gender				0.07	0.06	0.300			
Trait × Gender				-0.10	0.08	0.196			
Vignette SES × Gender				0.10	0.08	0.200			
Trait × Vignette SES × Gender				0.23	0.16	0.153			
Vignette version							0.10	0.06	0.123
	SD			*SD*			*SD*		
Participant Random Intercept	0.64			0.64			0.64		
N	250			251			251		
Observations	1000			1004			1004		
Marginal R^2 / Conditional R^2	0.066 / 0.320			0.069 / 0.322			0.068 / 0.318		

Note. Estimates (with standard errors) and goodness-of-fit statistics for three separate linear mixed effects models of children's failure attributions that test for moderation by child age (mean-centered), child gender (girls = 0.48, boys = -0.52), and control for vignette version (factor with 2 levels: 1 or 2) respectively. In each model, children's failure attributions are regressed on the trait (smart = 0.5, hardworking = −0.5), vignette SES (rich = 0.5; poor = −0.5), and their interaction. "Vignette version" refers to the version of the gender-matched vignettes that participants saw.

Table S18

Results of Robustness Tests for Children's Failure Attributions: Vignette Order, All Covariates Included

	Robustness Test 4 Controlling for Vignette Order			**Robustness Test 5 All Robustness Checks**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	2.35	0.16	**<0.001**	2.30	0.16	**<0.001**
Trait	0.15	0.04	**<0.001**	0.15	0.04	**<0.001**
Vignette SES	0.31	0.04	**<0.001**	0.31	0.04	**<0.001**
Trait × Vignette SES	-0.38	0.08	**<0.001**	-0.38	0.08	**<0.001**
Age				-0.001	0.02	0.980
Gender				0.06	0.07	0.335
Vignette version				0.11	0.07	0.097
order [1243]	0.002	0.20	0.994	0.01	0.20	0.958
order [1324]	-0.15	0.28	0.587	-0.12	0.28	0.680
order [1342]	0.01	0.23	0.962	0.04	0.23	0.866
order [1423]	-0.16	0.21	0.457	-0.18	0.21	0.386
order [1432]	0.07	0.22	0.758	0.10	0.22	0.662
order [2134]	0.10	0.22	0.650	0.08	0.22	0.702
order [2143]	-0.06	0.22	0.787	-0.08	0.22	0.697
order [2314]	0.12	0.22	0.583	0.14	0.22	0.524
order [2341]	-0.32	0.21	0.122	-0.36	0.21	0.092
order [2413]	-0.14	0.25	0.585	-0.15	0.25	0.556
order [2431]	-0.13	0.23	0.580	-0.17	0.23	0.472
order [3124]	0.14	0.23	0.557	0.11	0.23	0.623
order [3142]	-0.20	0.23	0.375	-0.20	0.23	0.380
order [3214]	0.07	0.28	0.786	0.07	0.28	0.814
order [3241]	-0.13	0.21	0.544	-0.14	0.21	0.526
order [3412]	0.02	0.21	0.906	0.01	0.21	0.978
order [3421]	-0.06	0.23	0.782	-0.07	0.23	0.773

order [4123]	0.24	0.22	0.259	0.21	0.22	0.334
order [4132]	-0.21	0.25	0.405	-0.22	0.25	0.375
order [4213]	-0.05	0.22	0.805	-0.06	0.22	0.790
order [4231]	-0.18	0.23	0.429	-0.17	0.23	0.475
order [4312]	0.26	0.22	0.221	0.24	0.22	0.267
order [4321]	-0.19	0.24	0.418	-0.18	0.24	0.444
	SD			*SD*		
Participant Random Intercept	0.64			0.64		
N	251			250		
Observations	1004			1000		
Marginal R^2 / Conditional R^2	0.098 / 0.343			0.103 / 0.346		

Note. Estimates (with standard errors) and goodness-of-fit statistics for two separate linear mixed effects models of children's failure attributions that control for order of vignettes (factor with 24 levels) and all covariates (child age, child gender, vignette version, and order), respectively. In each model, children's failure attributions are regressed on the trait (smart = 0.5, hardworking = −0.5), vignette SES (rich = 0.5; poor = −0.5), and their interaction. "Vignette version" refers to the version of the gender-matched vignettes that participants saw. The reference category for order is [1234], such that 1 = rich successful target, 2 = rich failure target, 3 = poor successful target, 4 = poor failure target.

Table S19

Results of Robustness Tests for Parents' Failure Attributions: Age, Gender, Vignette Version

	Robustness Test 1 Interacting Parent Age			**Robustness Test 2 Interacting Parent Gender**			**Robustness Test 3 Controlling for Vignette Version**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	2.11	0.03	**<0.001**	2.11	0.03	**<0.001**	2.11	0.05	**<0.001**
Trait	0.03	0.03	0.248	0.03	0.03	0.248	0.03	0.03	0.249
Vignette SES	0.18	0.03	**<0.001**	0.18	0.03	**<0.001**	0.18	0.03	**<0.001**
Trait × Vignette SES	-0.25	0.05	**<0.001**	-0.25	0.05	**<0.001**	-0.25	0.05	**<0.001**
Age	0.01	0.01	0.165						
Trait × Age	-0.004	0.01	0.534						
Vignette SES × Age	-0.003	0.01	0.549						
Trait × Vignette SES × Age	-0.01	0.01	0.422						
Gender				-0.07	0.06	0.290			
Trait × Gender				-0.05	0.05	0.323			
Vignette SES × Gender				0.03	0.05	0.626			
Trait × Vignette SES × Gender				-0.01	0.11	0.950			
Vignette version							-0.01	0.06	0.909
	SD			*SD*			*SD*		
Participant Random Intercept	0.42			0.42			0.42		
N	250			250			250		
Observations	1000			1000			1000		
Marginal R^2 / Conditional R^2	0.036 / 0.552			0.034 / 0.552			0.031 / 0.553		

Note. Estimates (with standard errors) and goodness-of-fit statistics for three separate linear mixed effects models of parents' failure attributions that test for moderation by child age (mean-centered), child gender (women = 0.42, men = −0.58), and control for vignette version (factor with 2 levels: 1 or 2) respectively. In each model, parents' failure attributions are regressed on the trait (smart = 0.5, hardworking = −0.5), vignette SES (rich = 0.5; poor = −0.5), and their interaction. "Vignette version" refers to the version of the gender-matched vignettes that participants saw.

Table S20

Results of Robustness Tests for Parents' Failure Attributions: Vignette Order, All Covariates Included

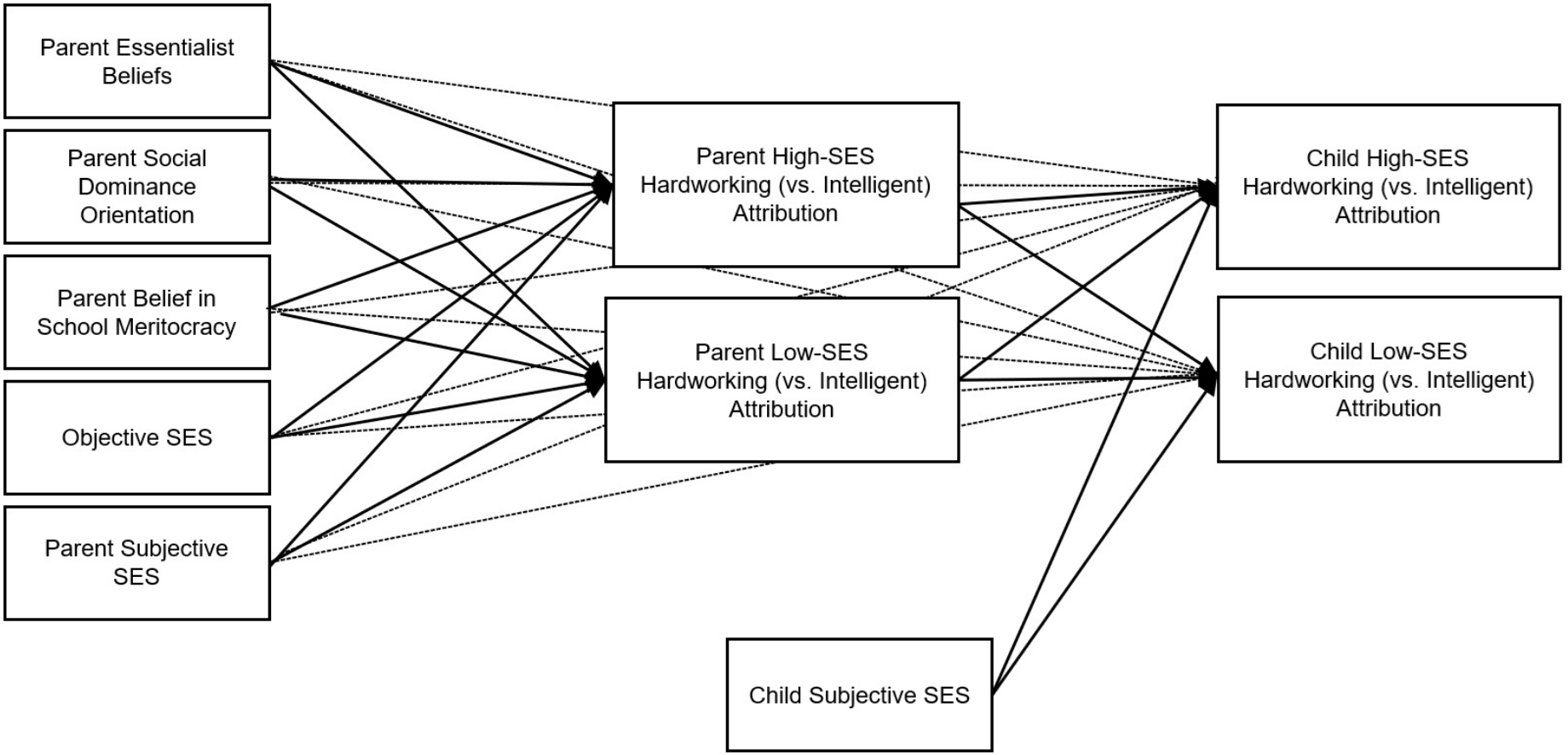
	Robustness Test 4 Controlling for Vignette Order			**Robustness Test 5 All Robustness Checks**		
Predictors	*b*	*SE*	*p*	*b*	*SE*	*p*
(Intercept)	1.83	0.21	**<0.001**	1.86	0.21	**<0.001**
Trait	0.03	0.03	0.249	0.03	0.03	0.249
Vignette SES	0.18	0.03	**<0.001**	0.18	0.03	**<0.001**
Trait × Vignette SES	-0.25	0.05	**<0.001**	-0.25	0.05	**<0.001**
Age				0.01	0.01	0.396
Gender				-0.07	0.07	0.319
Vignette version				-0.01	0.07	0.852
order [1243]	0.26	0.25	0.298	0.25	0.25	0.320
order [1324]	0.42	0.30	0.172	0.43	0.31	0.166
order [1342]	0.31	0.25	0.208	0.28	0.25	0.259
order [1423]	0.22	0.26	0.405	0.18	0.26	0.485
order [1432]	0.56	0.28	**0.046**	0.52	0.29	0.068
order [2134]	0.29	0.23	0.214	0.27	0.24	0.263
order [2143]	0.25	0.26	0.328	0.24	0.26	0.366
order [2314]	0.39	0.26	0.132	0.36	0.26	0.167
order [2341]	-0.08	0.26	0.749	-0.11	0.26	0.670
order [2413]	0.54	0.24	**0.026**	0.51	0.25	**0.038**
order [2431]	0.06	0.26	0.801	0.06	0.26	0.823
order [3124]	0.21	0.27	0.433	0.19	0.27	0.473
order [3142]	0.17	0.26	0.522	0.10	0.27	0.704
order [3214]	0.17	0.32	0.608	0.11	0.33	0.733
order [3241]	0.09	0.27	0.745	0.06	0.27	0.819
order [3412]	0.52	0.25	**0.036**	0.50	0.25	**0.047**
order [3421]	0.20	0.27	0.467	0.18	0.27	0.517

order [4123]	0.17	0.25	0.508	0.15	0.25	0.564
order [4132]	0.27	0.25	0.282	0.25	0.25	0.317
order [4213]	0.45	0.26	0.081	0.43	0.26	0.103
order [4231]	0.22	0.26	0.382	0.20	0.26	0.427
order [4312]	0.39	0.26	0.123	0.36	0.26	0.159
order [4321]	0.20	0.26	0.432	0.20	0.26	0.460
	SD			*SD*		
Participant Random Intercept	0.42			0.42		
N	250			250		
Observations	1000			1000		
Marginal R^2 / Conditional R^2	0.087 / 0.576			0.092 / 0.579		

Note. Estimates (with standard errors) and goodness-of-fit statistics for two separate linear mixed effects models of parents' failure attributions that control for order of vignettes (factor with 24 levels) and all covariates (parent age, parent gender, vignette version, and order), respectively. In each model, parents' failure attributions are regressed on the trait (smart = 0.5, hardworking = −0.5), vignette SES (rich = 0.5; poor = −0.5), and their interaction. "Vignette version" refers to the version of the gender-matched vignettes that participants saw. The reference category for order is [1234], such that 1 = rich successful target, 2 = rich failure target, 3 = poor successful target, 4 = poor failure target.

Figure S1

An Illustration of Models Predicting Child Intra-SES Stereotypes from Parental Beliefs, Objective and Subjective SES, and Parent Intra-SES Stereotypes



Note. Parental beliefs were allowed to covary. Covariances are not displayed for parsimony. Rectangles indicate observed variables. Solid lines indicate *a* paths (X → M) and the *b* path (M → Y), and dashed lines indicate *c* paths (X → Y) in the mediation model (*X* = independent variable. *M* = mediator. *Y* = dependent variable). We conducted three separate models: one for trait perceptions, one for success attributions, and one for failure attributions. Intra-SES stereotypes in the domain of failure attributions were reverse coded, so that higher scores reflect a tendency to attribute failure to a lack of smartness than a lack of hard work. Intra-SES stereotypes in the domain of trait perceptions and success attributions were not reverse coded, so that higher scores reflect a tendency to perceive children has more hardworking than smart and to attribute their success to hard work more than smartness, respectively.