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Veröffentlichungsversion / Published Version

Zeitschriftenartikel / journal article

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#### Empfohlene Zitierung / Suggested Citation:

Nießen, D., Wicht, A., Schoon, I., & Lechner, C. (2022). "You can't always get what you want": Prevalence, magnitude, and predictors of the aspiration–attainment gap after the school-to-work transition. *Contemporary Educational Psychology*, 71, 1-16. <https://doi.org/10.1016/j.cedpsych.2022.102091>

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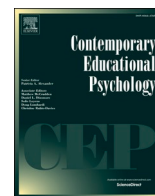
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# “You can’t always get what you want”: Prevalence, magnitude, and predictors of the aspiration–attainment gap after the school-to-work transition

Désirée Nießen<sup>a,\*</sup>, Alexandra Wicht<sup>b,c</sup>, Ingrid Schoon<sup>d</sup>, Clemens M. Lechner<sup>a</sup>

<sup>a</sup> *GESIS – Leibniz Institute for the Social Sciences, P.O. Box 12 21 55, 68072 Mannheim, Germany*

<sup>b</sup> *University of Siegen, Adolf-Reichwein-Str. 2, 57068 Siegen, Germany*

<sup>c</sup> *Federal Institute for Vocational Education and Training, Robert-Schuman-Platz 3, 53175 Bonn, Germany*

<sup>d</sup> *University College London (UCL), Gower Street, London WC1E 6BT, England*

## ARTICLE INFO

### Keywords:

Aspirations  
Attainment  
School-to-work transition  
Vocational education and training (VET)

## ABSTRACT

This study examined the prevalence, magnitude, and predictors of the *aspiration–attainment gap* (AAG) after the school-to-work transition. We operationalized the AAG as the discrepancy between the socioeconomic status (SES) of young people’s *realistic* occupational aspirations and that of the position they actually attained. As a case in point, we investigated non-college-bound students transitioning into a vocational education and training (VET) position in Germany. Our aims were twofold: first, to establish how many students experience an AAG of what size; second, to identify characteristics that predict whether students experience an AAG. We considered sociostructural characteristics, cognitive ability and school grades, and Big Five personality traits as predictors (i. e., potential determinants) of the AAG. Analyses in a representative sample ( $N = 2,478$ ) of intermediate secondary school (*Realschule*) students/graduates from the German National Educational Panel Study (NEPS; Starting Cohort 4) revealed that 45.9% of students experienced an AAG. Two-part regression models showed that the level of aspirations was the strongest predictor of the experience and size of an AAG, followed by school grades. Aspirations also mediated the effects of several other predictors, most importantly parental SES and school grades. Parental SES, female gender, and Emotional Stability had contradictory effects: They indirectly increased the risk of experiencing an AAG by raising aspirations, but at the same time they lowered this risk by directly increasing attainment. Overall, our results suggest that the AAG during the transition from school to VET is a widespread experience among students in Germany that is worthy of further investigation.

## 1. Introduction

A successful school-to-work transition plays a pivotal role in shaping youths’ subsequent occupational careers (e.g., Schoon & Heckhausen, 2019; Tomasik et al., 2009). However, especially in today’s highly competitive education systems and labor markets, this transition is sometimes difficult. Some youth inevitably fall short of their own expectations and goals. These youth experience a gap between their aspirations and their actual attainment, or what some have termed an *aspiration–attainment gap* (AAG).

The term AAG is often used in the context of educational aspirations and attainment (e.g., Buttaro et al., 2010; Paat, 2015, 2016), although people can experience an AAG in any area of life, such as with regard to marriage, childbearing, or income. In the context of educational and

school-to-work transitions, which is our focus in the present study, the AAG denotes a discrepancy between the occupational position to which students aspire versus the one they attain. Specifically, we conceived of the AAG as the difference between the socioeconomic status (SES) of the aspired occupation and the SES of the attained position (although other facets of the AAG are conceivable (e.g., Ahrens et al., 2021a, 2021b)). SES is of particular interest because it reflects the social class and career prospects associated with an occupation and is therefore meaningful in terms of the further life course. Hence, the AAG is a potentially insightful concept that could complement other perspectives on successful school-to-work transitions.

As a case in point, we investigated the AAG among non-college bound youth who transitioned from secondary school to a vocational education and training (VET) in Germany. Our aims were twofold: first,

\* Corresponding author.

E-mail address: [desiree.niessen@gesis.org](mailto:desiree.niessen@gesis.org) (D. Nießen).

<https://doi.org/10.1016/j.cedpsych.2022.102091>

to establish how widespread the thus-conceived AAG is in this population (*prevalence* and *magnitude*); second, to identify characteristics that predict which students experience an AAG or not (*predictors*). In this regard, we considered a broad range of candidates that previous research has shown to predict aspirations, attainment, or both: socio-structural characteristics, cognitive ability and school achievement, and personality traits.

## 2. Theoretical background

### 2.1. Why the AAG is an important characteristic of successful transitions

Research on school-to-work transition has traditionally focused on identifying predictors of *attainment*, more specifically, of successful transitions in terms of fast and smooth access to the labor market and the SES associated with the attained position (e.g., Blossfeld, 2017; Kleinert & Jacob, 2013; Schoon & Polek, 2011). Another line of research has identified precursors and consequences of *aspirations* during the school-to-work transition (e.g., Mello, 2008; Schoon & Eccles, 2014). By comparison, the degree to which youth are able to realize their aspirations or not—the AAG—has received little attention.

We propose a new perspective on school-to-work transitions and submit that focusing on the AAG may offer a valuable complement to the outcomes that research on school-to-work transition has traditionally investigated. First, the ability to realize one's aspirations can serve as an additional indicator of a successful transition. Different from attainment indicators that focus on normative, objective definitions of success (e.g., grades, level of education, obtaining a position, prestige, income, or retention; see, e.g., Damian et al., 2015; Nießen et al., 2020), the AAG reflects a more subjective definition of success that depends on the fit between individuals' aspirations and the position they attain.

Second, experiencing an AAG may have adverse consequences for a range of outcomes. From the perspective of discrepancy theories (e.g., Higgins, 1987; Michalos, 1985), level of aspiration theory (e.g., Starbuck, 1963), and person–environment (P–E) fit theories (e.g., Edwards & Shipp, 2007), gaps between aspirations and actual attainment may hamper motivation, performance, and well-being. In support of these theories, evidence suggests that experiencing an occupational AAG is linked to lower satisfaction with VET; lower life, job, and income satisfaction; a higher likelihood of dropping out of VET; and a lower propensity to consider oneself as very successful in one's work life (e.g., Beckmann et al., 2021; Carr, 1997; Hardie, 2014; Nießen et al., 2021). Low satisfaction, in turn, is related to a range of detrimental long-term career outcomes such as turnover, dropout, decreased work motivation, and decreased goal striving (e.g., Beckmann et al., 2021; Haase et al., 2012; Medici et al., 2020; Ton & Hansen, 2001).

Third, differences in the ability to realize one's aspirations may constitute an additional aspect of social inequality that is worthy of investigation. Experiencing an AAG may reflect individual or group-specific disadvantages and structural barriers to realizing aspirations. Because the AAG is a joint function of aspirations and attainment (specifically, the difference between them), investigating the AAG as a characteristic of successful transition may reveal additional insights regarding social inequality in the school-to-work transition that are not evident in aspirations or attainment alone.

In sum, we argue that the AAG is a concept that is worthy of greater research attention, both in its own right and because of its potential adverse consequences. For these reasons, we believe that it is important to understand how many youths are able to realize their aspirations during the school-to-work transition; and how those that are able to realize their aspirations differ from those who are not. In other words, it is important to establish the *prevalence*, *magnitude*, and *predictors* of the AAG. However, so far, we know very little about the AAG after the school-to-work transition, let alone in relation to VET students in Germany.

### 2.2. Why might students experience an AAG after the school-to-work transition? Theoretical perspectives

There is no theory of school-to-work transitions or career development that focuses specifically on the AAG. However, there are several pertinent theoretical perspectives that inform our current work on the AAG. These perspectives suggest considering two main processes that might lead to the emergence of an AAG: individual self-selection processes and institutional selection processes (i.e., by vocational schools or employers).

*Individual self-selection processes* refer to students' resources and behaviors that (indirectly) influence the risk of experiencing an AAG through the goals (i.e., aspirations) they set for themselves and pursue. According to *social cognitive career theory* (SCCT; Lent et al., 2002) and *Gottfredson's (2002) theory of circumscription, compromise and self-creation* (CCS), occupational aspirations, a key component of the AAG, are the result of learning experiences, which are influenced by multiple factors, including social background (e.g., gender, social class, ethnicity), individual abilities and predispositions (i.e., heritable factors, such as cognitive ability, personality traits). Occupational aspirations are thought to mediate the influences of social background and individual-level abilities and predispositions on occupational attainment, the second part of the AAG (for detailed information on SCCT and CCS, see, e.g., Brown, 2002).

*Institutional selection processes* refer to characteristics and behaviors of students that influence employers' perceptions of their aptitude, and thus employers' decisions whether to offer students a VET position. Economic theories, such as signaling theory (Spence, 1974), highlight "the signaling power of education" (Spence, 1973, p. 356). Educational certificates and grades act as market signals about applicants' expected productivity (Spence, 1974) and trainability (Thurow, 1975). Similarly, other directly or indirectly visible individual characteristics (e.g., ethnicity, gender, abilities, and personality traits) can also be the subject of evaluation on the VET market, which influence whether individuals obtain the VET position for which they applied. For example, in addition to grades, basic personality traits, such as Conscientiousness or Extraversion, or gender are used in the selection process as potential information about the expected suitability of applicants (e.g., in terms of reliability, dealing with customers, gender-typical occupations; see, e.g., Caldwell & Burger, 1998; Charles & Grusky, 2005; Nießen et al., 2020).

Together, these theories suggest that occupational attainment strongly depends on sociostructural characteristics, educational achievement, and predispositions. These factors can influence occupational attainment directly by fostering it, and indirectly through occupational aspirations. The next section provides an overview of pertinent evidence.

### 2.3. Previous evidence on the predictors of aspirations and attainment

Although the interplay of aspirations and attainment has long been a central issue in the study of school-to-work transitions and career development (e.g., Schoon & Eccles, 2014), little previous research has addressed the occupational AAG as defined above. A handful of studies have investigated the educational AAG in the sense of the discrepancy between the highest aspired level of education and actual educational attainment (e.g., Buttaro et al., 2010; Paat, 2015, 2016). This research hails mainly from English-speaking countries and has focused on differences in attainment by ethnic background, and mostly on educational aspirations in selective samples (e.g., children of Mexican immigrants, Black students). Another strand of studies has examined the effect of educational attainment on educational aspirations (e.g., McCarron & Inkelas, 2006; McElvany et al., 2018) in selective samples (e.g., first-generation students, students with or without a Turkish migration background). Still other studies have investigated the relevance of educational/academic aspirations for educational/academic attainment (e.g., Kay et al., 2016; Schoon & Lyons-Amos, 2016).

Thus, as it stands, little is known about the (occupational) AAG and the characteristics that predict the AAG among youth at labor market entry. Even so, previous research on the predictors of and the link between aspirations and attainment can inform hypotheses about the predictors of the occupational AAG at entry to VET. As the AAG is the discrepancy between aspirations and attainment, any characteristic associated with either variable must also be associated with the AAG.

### 2.3.1. The link between aspirations and attainment

In line with the theories reviewed above, previous research has highlighted the role of occupational aspirations for occupational attainment (e.g., Ashby & Schoon, 2010; Mello, 2008; Schoon & Parsons, 2002) with the typical finding that higher aspirations predict higher attainment (e.g., Schoon & Lyons-Amos, 2016, 2017). For example, in a study of low-achieving school leavers in Germany, Holtmann et al. (2017) found that higher career aspirations led to stronger efforts to apply for a VET position—a crucial step in obtaining an apprenticeship. Young people with higher aspirations have also been found to attain higher social status and income (e.g., Rojewski, 2005; Schoon & Polek, 2011). Furthermore, in a sample of Black high school students in the USA, Buttaro et al. (2010) found that higher educational aspirations were related to lower educational AAGs, but most students were unable to achieve their eighth-grade educational aspirations 12 years later.

### 2.3.2. Sociostructural characteristics as predictors of aspirations and attainment

Previous investigations have also revealed strong associations of family background and gender with young people's educational and occupational attainment (e.g., Becker & Schubert, 2011; Duncan & Brooks-Gunn, 1997; Klein et al., 2009). Young people from higher-SES families have been found to have higher aspirations (e.g., Schoon & Polek, 2011) and higher occupational attainment compared with their less socially privileged counterparts (e.g., Schoon, 2010). Young people in Germany with a migration background reported higher aspirations but had lower occupational attainment compared with native Germans (e.g., McElvany et al., 2018). This phenomenon has been referred to as the *immigrants' aspiration-achievement paradox* (e.g., Kao & Tienda, 1998; Salikutluk, 2013). Finally, females have been found to have higher aspirations than males (e.g., Schoon & Polek, 2011; Wicht et al., 2022).

### 2.3.3. Cognitive ability and school grades as predictors of aspirations and attainment

Cognitive ability and school grades are further key predictors of occupational attainment. Cognitive ability, which is not directly observable, is a measure of students' *potential* to perform in a job. It is positively associated with occupational aspirations (e.g., Schoon & Polek, 2011) and ranks among the strongest predictors of both educational and occupational attainment (e.g., Deary et al., 2007; Kuncel et al., 2004; Schoon, 2010). School grades, on the other hand, represent a directly observable measure of *actual* achievement in the form of educational certificates. Higher school grades are associated with lower educational AAGs (Buttaro et al., 2010; Paat, 2015) and higher occupational attainment (e.g., Kay et al., 2016; Mello, 2008). Large-scale studies and meta-analyses have shown that grades and cognitive ability are only moderately correlated (e.g.,  $r = .32$ , Lechner et al., 2017;  $r = .44$ , Roth et al., 2015), indicating that they capture different information about young people's potential to attain desired occupational positions.

### 2.3.4. Personality traits as predictors of aspirations and attainment

Personality traits, such as the Big Five Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience (Costa & McCrae, 1992; Goldberg, 1992), feature prominently in classic theories of career choice (e.g., Holland, 1997). In particular, higher Openness has been shown to be involved in the formation of higher aspirations (e.g., Rottinghaus et al., 2002). Moreover, a growing body of

evidence also demonstrates the predictive power of the Big Five for educational and occupational attainment (for a recent review, see Lechner et al., 2019). For example, initial evidence suggests that personality predicts a range of indicators of successful transitions to VET, even over and above SES, migration background, gender, and cognitive ability. Students who have higher Conscientiousness and Extraversion are more likely to obtain a VET position (Nießen et al., 2020) and to find a job after completing their studies (Gilar et al., 2015). In addition, Conscientiousness is an important selection criterion for employers (e.g., Caldwell & Burger, 1998; Dunn et al., 1995; Moy & Lam, 2004).

### 2.4. The present study

Although the evidence reviewed above has cast light on the determinants and consequences of aspirations and attainment separately, the degree to which youth are able to *realize* their aspirations—that is, whether they experience an AAG or not—has hardly been the subject of prior research. In the present study, we therefore focused on the occupational AAG as a complementary measure of successful transitions from school to work. Using representative longitudinal data about young people's transitions from intermediate secondary schools (*Realschule*) to VET in Germany, we sought to answer two questions. First, we aimed to establish how many adolescents were (un-)able to realize their occupational aspirations in the transition to VET—that is, what percentage of students experienced an AAG (*prevalence*), and how large this gap was (*magnitude*). Second, we aimed to unravel why some adolescents may experience an AAG (*predictors*). More specifically, we investigated (a) whether sociostructural characteristics, cognitive ability, school grades, and personality traits predicted the AAG directly (direct effects); (b) whether these variables did so indirectly, that is, mediated via occupational aspirations (indirect effects); or (c) whether they did so both directly and indirectly. Fig. 1 summarizes our research questions.

The transition from school to VET is the typical school-to-work transition for *Realschule* graduates in Germany because they are eligible only to take up VET. Their aspirations are therefore an important construct, reflecting possible differences in the *horizon of perceived possibilities* (Schoon & Heckhausen, 2019, p. 140). Given that individuals who underwent VET generally stay in the occupation for which they have trained, the SES associated with that occupation will typically not change much in their further life course. Therefore, the attained VET position is a suitable measure for a young person's occupational attainment (for more details of the highly structured education system and dual system of VET in Germany, see Appendix A).

Our hypotheses concerning the predictors of the AAG are based on the previous research reviewed earlier. We expected, first, that higher occupational aspirations would be associated with a higher likelihood of experiencing an AAG (see, e.g., Buttaro et al., 2010) because higher aspirations carry a higher risk of failure. Second, we expected that sociostructural characteristics that reflect higher resources (higher parental SES and cultural capital; see, e.g., Schoon, 2010; Schoon & Polek, 2011), and female gender (see, e.g., Schoon & Polek, 2011; Wicht et al., 2022) would be associated with both higher aspirations and higher attainment, and hence a lower likelihood of experiencing an AAG. We expected that students with a migration background would express higher aspirations than native Germans but would show lower attainment (see, e.g., McElvany et al., 2018) and hence have a higher likelihood of experiencing an AAG. Third, we expected that higher cognitive ability (see, e.g., Deary et al., 2007; Schoon & Polek, 2011) and school grades (see, e.g., Kay et al., 2016; Paat, 2015) would be associated with both higher aspirations and a lower probability of experiencing an AAG because these variables are linked to higher attainment. Fourth, we expected that students with higher Conscientiousness, Emotional Stability, and Extraversion and with lower Openness and Agreeableness would have a lower probability of experiencing an AAG, because these characteristics are associated with higher attainment (see, e.g., Lechner et al., 2019). We also tested possible



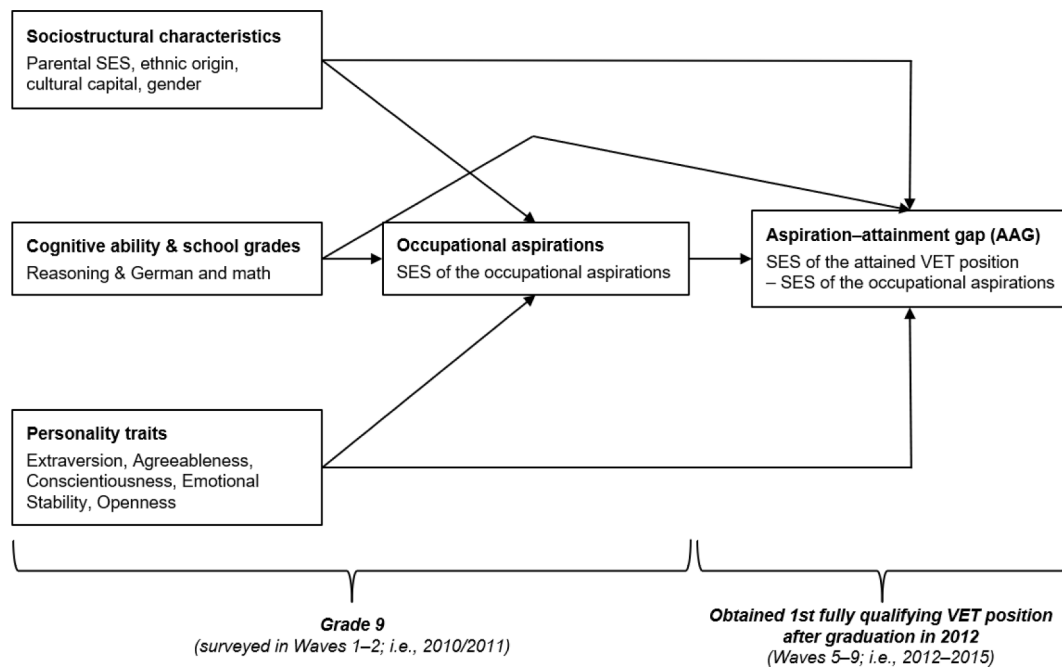


Fig. 1. Schematic depiction of the research question and the time assessment of the variables. SES = socioeconomic status, VET = vocational education and training.

associations between the Big Five and aspirations in an exploratory fashion in order to generate novel hypotheses for future research.

### 3. Material and methods

#### 3.1. Sample

Our analyses are based on the German National Educational Panel Study (NEPS), Starting Cohort 4 (Blossfeld & Roßbach, 2011; <https://doi.org/10.5157/NEPS:SC4:9.1.1>),<sup>1</sup> which provides in-depth information on students' transition from school to VET. These data comprise a large and representative sample of initially 15,110 ninth graders in 540 regular schools (i.e., the sample of students excluding those who attended special needs schools [*Förderschulen*]). The sample was representative of German ninth graders and was drawn in a two-stage procedure: First, schools in Germany were randomly drawn and then classes within the drawn schools were randomly drawn. The first survey was carried out in ninth grade in the classroom via paper-and-pencil

<sup>1</sup> From 2008 to 2013, NEPS data were collected as part of the Framework Program for the Promotion of Empirical Educational Research funded by the German Federal Ministry of Education and Research (BMBF). Since 2014, NEPS has been carried out by the Leibniz Institute for Educational Trajectories (LifBi) at the University of Bamberg in cooperation with a nationwide network. NEPS data and documentation are provided to researchers in the form of scientific use files. Access to the data is subject to conclusion of a data use agreement (for details, visit: <https://www.neps-data.de/data-center/data-access/data-use-agreements.aspx>). The studies involving human participants were reviewed and approved by the German Federal Commissioner for Data Protection and Freedom of Information (BfDI) and in coordination with the German Standing Conference of the Ministers of Education and Cultural Affairs (KMK) and—in the case of surveys at schools—with the Educational Ministries of the respective Federal States. All data collection procedures, instruments, and documents were checked by the data protection unit of the Leibniz Institute for Educational Trajectories (LifBi). The necessary steps are taken to protect participants' confidentiality according to national and international regulations of data security. Participation in the NEPS study is voluntary and based on the informed consent of participants. This consent to participate in the NEPS study can be revoked at any time. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

interviewing (PAPI) in autumn 2010 (Wave 1), followed by a second survey in ninth grade in spring 2011 (Wave 2). From tenth grade onwards, subsequent surveys took place annually in the classroom via PAPI (Waves 3–8; i.e., 2011–2015). Respondents who had left the general education system were interviewed biannually (Waves 3–6; i.e., 2011–2013) and later annually (Wave 7 [i.e., 2013] onwards) using computer-assisted telephone interviewing (CATI). We used data from Wave 1 to Wave 9 (i.e., 2010–2015).

We deliberately restricted our analysis to school leavers from intermediate secondary schools (*Realschule*; International Standard Classification of Education Level 2A [ISCED-97]; Schneider, 2008). Both substantive and design-related considerations guided our decision to exclude school leavers from the other two typical school types in Germany. First, students from *Hauptschule* (a type of school at lower secondary level; ISCED-97 Level 2B) may leave the general school system after ninth grade and hence could have already been accepted for a VET position at the time aspirations were measured in the current data, potentially introducing bias in our analyses. Second, the current release of the NEPS data (at the time when this study was being conducted) did not allow for investigating the AAG of students attending academically oriented secondary schools (German: *Gymnasium*; ISCED-97 level 3A) because they have not yet started VET or tertiary education. Moreover, contrary to *Realschule* students, the transition from school to VET is not the typical transition for these students (in 2018, only about 21% of *Gymnasium* graduates started a VET position, whereas 79% went on to attend a higher education institution [Statistisches Bundesamt, 2019]), and unlike occupations learned in VET, university studies do not correspond to specific occupations that can be coded with an SES.

In the initial sample of 15,110 ninth graders, 5,341 (32.5%) were attending *Realschule* in Wave 1, over half of whom (2,849; 53.3%) transitioned from *Realschule* to a fully qualifying VET position (i.e., a position that leads to full vocational qualification) during the observation period (Waves 3–9). We excluded 371 of these students because they either did not provide information on their occupational aspirations, or their reported aspirations were too vague to be coded. The final analytical sample thus consisted of 2,478 students, who were, on average, 15.2 years old at the time of their initial interview in ninth grade ( $SD = 0.6$ ,  $Min = 12$ ,  $Max = 18$ ).

### 3.2. Measures

#### 3.2.1. Aspiration–attainment gap

Our measure of the AAG was the difference between the SES of students' occupational aspirations and of the VET position they actually attained. With regard to occupational aspirations, we used students' realistic aspirations measured in ninth grade, that is, before the transition to VET after completion of tenth grade (Wave 2; i.e., 2011). Realistic occupational aspirations (also called expectations; e.g., Ashby & Schoon, 2012; Rehberg, 1967; Reynolds & Pemberton, 2001) refer to the specific occupations that students expect to attain in the future, taking into account their perceived opportunity structure, including individual resources and external constraints (Rehberg, 1967). NEPS assessed these aspirations with the open-ended question "Considering everything you know right now: What will probably be your occupation in the future?" (NEPS, 2013, p. 91).<sup>2</sup>

With regard to the attained VET position, we used each student's first stable (i.e., lasting at least 3 months) and fully qualifying VET position after general schooling (i.e., after leaving *Realschule*). Depending on how long the search duration lasted before entering VET, we used information from Waves 5–9 (i.e., 2012–2015; Wave 9 was the last wave available at the time of conducting the present study). As occupational aspirations, the measurement of the attained VET position, in NEPS, was assessed with an open-ended question: "In which [occupation] exactly are you doing/did you do the vocational training as part of your dual vocational training and degree program? Please specify the exact name, for instance[,] how it is stated in your training contract" (NEPS, 2019, p. 123).

NEPS classifies students/apprentices' open-ended responses into several standard occupational classification schemes. In order to map the SES associated with the aspired occupation and with the attained VET position, we used the International Socio-Economic Index (ISEI; Ganzeboom et al., 1992). ISEI is a well-validated (internationally and nationally) and frequently used standard measure of SES that is conceptually compelling because the SES of an occupational position captures not only the associated income but more broadly also the years of education required to qualify for that occupation (Züll, 2016). The latest version (i.e., ISEI-08) is an index estimated and validated using data from the International Social Survey Program (ISSP) from 2002 to 2007 on the occupation, education, and personal income of 200,000 working people in 42 countries around the world (including Germany; Ganzeboom, 2010). Moreover, ISEI is well suited for our purpose because it allows assigning a quantitative status to a qualitative position (e.g., baker: 23.57, banker: 68.54, nurse: 68.70, mathematician: 81.78), with very high interrater reliability (e.g., Maaz et al., 2009). Examples of occupations with the lowest ISEI-08 scores include gardeners (11.56) and cleaners (14.20), whereas examples of occupations with the highest ISEI scores include doctors (88.70) and judges (88.96).

Using ISEI, we were able to directly compare the SES of the attained VET position and the SES of the aspired occupation. We computed the AAG as the difference score between the ISEI of the attained VET position and the ISEI of students' realistic occupational aspirations:

$$\text{AAG} = \text{ISEI}_{\text{attained VET position}} - \text{ISEI}_{\text{aspired occupation}}$$

Negative values on this measure indicate that students were unable

<sup>2</sup> If the students' expectations matched their actual chances on the training market, there should be no major gap between their aspirations and what they attained. Realistic aspirations should not be mistaken for *idealistic* aspirations (also simply called aspirations; e.g., Ashby & Schoon, 2012; Rehberg, 1967; Reynolds & Pemberton, 2001) that represent wishes and dreams about what one desires ideally. In the latter case, an AAG would be expected. For comparison, the question that precedes the measurement of realistic aspirations in the questionnaire surveys the idealistic aspirations: "Regardless of your current situation, what [occupation] would you most like to [take up] in the future?" (NEPS, 2019, p. 907).

to fully realize their aspirations, and thus experienced an AAG.

For our analyses, we computed a binary AAG variable assigning students to one of two groups: (a) a reference group with a difference score  $\geq 0$ , that is, adolescents who did not experience a gap; and (b) the focal group of adolescents with a difference score  $< 0$ , that is, adolescents who experienced a gap. In addition to the binary AAG variable, we also used the aforementioned continuous AAG variable (difference score) measuring the size of the AAG for the focal group of students whose attained VET position fell short of their aspirations.

#### 3.2.2. Sociostructural characteristics (Waves 1–2)

We used measures of students' parental SES, cultural capital, ethnic origin, and gender to capture their sociostructural background. Parental SES was measured with ISEI-08, which has the same metric as students' aspirations. Cultural capital was measured with the number of books available in the household, with a scale ranging from 1 (0–10 books) to 6 (more than 500 books), which is the most widely used proxy of cultural capital (Sieben & Lechner, 2019).<sup>3</sup> Students' ethnic origin was determined by information on the country of birth of the students, their parents, and their grandparents. We distinguished between native German (reference category), first-generation migrant, and second-generation migrant. Students' gender was measured with a binary indicator (1 = male, 2 = female).

#### 3.2.3. Cognitive ability and school grades (Wave 2)

We included measures of students' cognitive ability and school grades. Cognitive ability was measured with the NEPS reasoning test, NEPS-MAT, a figural reasoning task that assesses general cognitive ability with 12 items (see Pohl & Carstensen, 2012), with possible sum scores ranging from 0 to 12. The internal consistency of NEPS-MAT can be found in Table 1. We recorded students' average school grade in German and math based on their final report card at the end of Grade 9. We recoded grades such that higher values reflected higher grades. Recoded grades have a theoretical range from 1 (*low/bad*) to 6 (*high/good*).

#### 3.2.4. Personality traits (Wave 1)

We used the Big Five personality traits Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience (Costa & McCrae, 1992; Goldberg, 1992). The Big Five is currently the most widely used and empirically best validated model of personality. In NEPS, the Big Five traits were assessed with 11 items—10 items from the 10-Item Big Five Inventory (BFI-10; Rammstedt & John, 2007), an established, well-validated 10-item short scale, and an additional item for Agreeableness. Students answered all items on a 5-point response scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). As a measure of the internal consistency (reliability) of the Big Five scale scores, we used the Spearman-Brown formula. In the present sample, reliabilities ranged between .36 (Agreeableness) and .63 (Extraversion). These scores can be deemed sufficient for (ultra-)short scales because the items are intended to cover heterogeneous facets of the Big Five dimensions (Rammstedt & John, 2007). In general, as previous research has demonstrated, the BFI-10's test–retest reliabilities are much higher than its internal consistencies (on average  $r_{tt} = .75$ ; see Rammstedt & John, 2007). In addition, the BFI-10's predictive validity is almost as high as, and occasionally even higher than, the predictive validity of longer Big Five inventories (Rammstedt et al., 2020; Thalmayer et al., 2011).

#### 3.2.5. Search duration (Waves 5–9)

We additionally examined the effect of search duration (i.e., the number of months it took students to obtain a VET position after school graduation) on the AAG because of two reasons: On the one hand, longer

<sup>3</sup> We checked in advance whether the effects were linear. Because this was the case, we treated the variable as continuous.

**Table 1**  
Descriptive Statistics of the Variables.

Variables	Min.	Max.	<i>M</i> or %	<i>SD</i>	Cronbach's $\alpha$	Wave	<i>N</i>
Aspirations	11.56	88.96	47.33	16.72	–	2	2,478
Attained VET position	11.56	83.50	39.70	13.32	–	5–9	2,478
AAG	0.00	–71.00	–9.25	14.46	–	–	2,478
Parental SES	13.34	88.96	46.62	18.30	–	1–2	2,226
Cultural capital	1	6	3.59	1.35	–	1–2	2,317
Ethnic origin	1	3	–	–	–	1–2	2,478
German	1	1	81.11	–	–	1–2	2,010
First-generation migrant	2	2	4.60	–	–	1–2	114
Second-generation migrant	3	3	14.29	–	–	1–2	354
Gender	1	2	–	–	–	1–2	2,478
Male	1	1	53.55	–	–	1–2	1,327
Female	2	2	46.45	–	–	1–2	1,151
Cognitive ability	0	12	8.41	2.35	.63	2	2,348
School grades <sup>a</sup>	1.25	5.50	3.15	0.60	–	2	2,463
Extraversion	1	5	3.45	0.88	.63	1	2,348
Agreeableness	1	5	3.48	0.66	.36	1	2,341
Conscientiousness	1	5	3.21	0.85	.48	1	2,368
Emotional Stability	1	5	3.24	0.84	.40	1	2,360
Openness	1	5	3.41	0.94	.41	1	2,366
Search duration	1	54	4.54	6.58	–	–	2,478

Note. VET = vocational education and training; AAG = aspiration–attainment gap; SES = socioeconomic status.

<sup>a</sup> Higher values reflect higher grades.

search durations might increase students' chances of obtaining a coveted VET position, which matches their aspirations (see job search theory; e.g., Lippman & McCall, 1976). On the other hand, after a certain threshold, the negative signaling effect of time spent in unemployment, and the downward adjustment of expectations might force students to accept VET positions that fall short of their aspirations (see signaling theory; e.g., Spence, 1974).

### 3.2.6. Descriptive statistics

Table 1 displays the descriptive statistics and reliability estimates (if applicable) of all variables in the present sample. The correlations between the variables are depicted in Appendix B. Associations between the predictor variables of our study were mostly small, thereby allaying concerns about possible multicollinearity.

### 3.3. Analyses

In a first step, we descriptively examined how many students experienced an AAG (using the binary AAG variable), and how large the gap was among those who experienced it (using the continuous AAG variable).

In a second step, we estimated two-part linear regression models (e.g., Neelon & O'Malley, 2019) to identify factors that predicted the AAG (see Fig. 1). The two-part models enabled us to look at two different processes: first, the factors that predicted whether or not students would experience an AAG (Part I); second, the factors that predicted the size of the AAG among those who experienced it (Part II). The first part was estimated by a linear probability model, and the second part by a linear regression model. Within the two-part model, we applied path models to disentangle whether the different factors under study predicted students' AAG directly or indirectly through their occupational aspirations (see Fig. 1). In doing so, we calculated the direct, indirect, and total effects of the predictor variables on the AAG. We obtained indirect effects through the product-of-coefficient method. The total effects are the sum of the direct and indirect effects. We used bias-corrected bootstrap (10,000 replications) to calculate the standard errors of all effects, because this procedure does not require assumptions about the sampling distribution of the estimated effects (MacKinnon, 2008). In order to account for the clustering of observations within schools, we used a Huber-White sandwich estimator to obtain cluster-robust standard errors (Williams, 2000).

We ran the analyses with Mplus version 8.1 (Muthén & Muthén,

1998–2017). To deal with missing values of independent variables, we used full information maximum likelihood (FIML) estimation. Therefore, correlations between the predictors were allowed. To facilitate comparisons of effects sizes, we standardized all continuous independent variables (i.e., parental SES, cultural capital, cognitive ability, school grades, Big Five personality traits, search duration) so that the regression coefficients indicate the effect on the dependent variable of a change of one standard deviation in the independent variables.

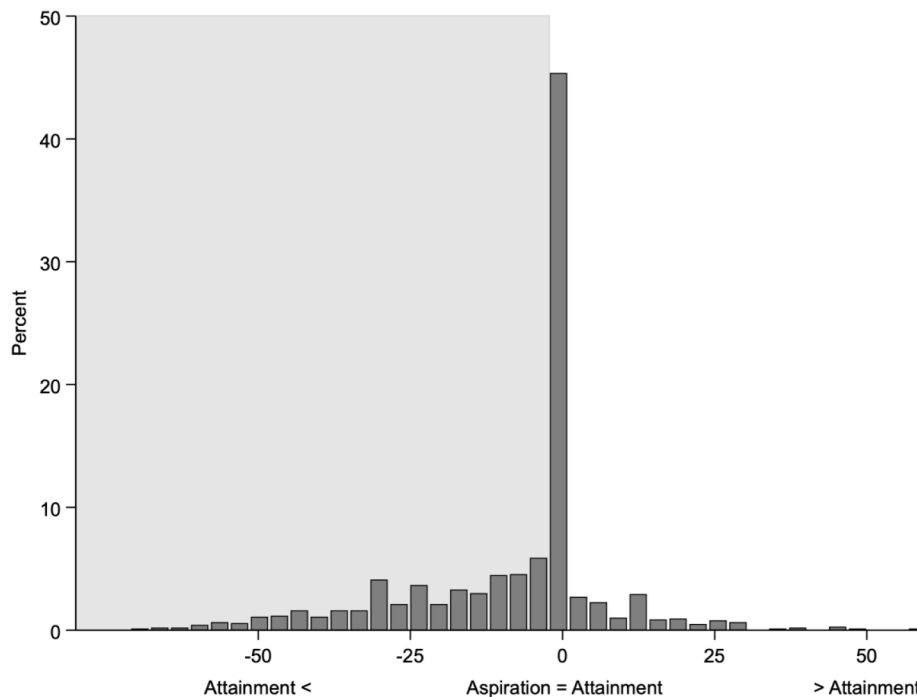
## 4. Results

### 4.1. Prevalence and magnitude of the AAG

Fig. 2 shows the distribution of the AAG. As the peak at zero shows, 1,000 (or 40.4%) of the students in our sample were able to realize their aspirations by attaining a VET position with exactly the same SES as that associated with their aspired occupation, and 340 (13.7%) attained a VET position with an even higher SES than that of the occupation to which they had aspired. In other words, 54.1% of the students realized, or even exceeded, their aspirations in their VET position. However, 1,138 students (45.9%) were unable to realize their occupational aspirations in their attained VET position, as indicated by an AAG < 0.

The average size of the AAG among those who experienced it (i.e., AAG < 0) was –20.14 ISEI points (*SD* = 15.37), with the largest gap amounting to –71.00 points. In order to have the average AAG of –20 ISEI points, a student would have to indicate, for example, social work associate professional (ISEI score: 52.72) as occupational aspirations, but then end up in a VET position as stock clerk (ISEI score: 32.50). The average earnings difference to be expected in the work life would then be 1,075 euros. However, most of the AAG values were not as extreme as the maximum value might suggest, with 90% of all AAG values ranging between –3.00 and –43.00. As Appendix C shows, larger values for the AAG were very rare.

To garner deeper insights into how the distribution of the AAG shown in Fig. 2 arose, we additionally inspected the distribution of aspirations and the attained VET positions, which together compose the AAG, among those who experienced an AAG. To get a more concrete idea of the ISEI scores and differences, we give sample occupations and their average expected earnings across all age groups and genders, although it should be noted that salary is only one aspect of ISEI, and education is also included in the SES classification (for the scores for each International Standard Classification of Occupations [ISCO-88]



**Fig. 2.** Percentages of the distribution of the aspiration–attainment gap. As a metric variable, the peak in the middle includes both the zeros and a few additional observations with values close to zero. The shaded gray area to the left of the peak is the focus of our analyses, and represents what we defined as the AAG.  $N = 2,478$ .

occupational title, see [Ganzeboom & Treiman, 1996](#); for the average gross earnings, see <https://web.arbeitsagentur.de/entgeltatlas/><sup>4</sup>).

The average ISEI score of students' aspirations was 55.81 ( $SD = 16.83$ ). The occupations with ISEI scores closest to that average value are life science and health associate professionals (55.40, average gross earning: 3,342 euros) and safety and quality inspectors (55.96, average gross earning: 3,810 euros). The ISEI scores of the occupational aspirations of 90% of all students ranged between 32.50 (stock clerks, average gross earning: 2,812 euros) and 79.74 (architects, average gross earning: 4,122 euros; town and traffic planners, average gross earning: 4,658 euros; incl. landscape architects, average gross earning: 3,725 euros). The ISEI score of the highest occupational aspiration reported by any student (judge, average gross earning: 6,140 euros) was 88.96. On average, students reported having attained VET positions with an ISEI score of 35.65 ( $SD = 11.79$ ). The ISEI scores of 90% of the attained positions ranged between 21.64 (home-based personal care workers, average gross earning: 3,306 euros; incl. attendants, average gross earning: 2,659 euros) and 52.72 (social work associate professionals, average gross earning: 3,887 euros). These occupations can indeed be attained through VET. Importantly, higher ISEI scores—especially those associated with professions that cannot be attained through VET but require tertiary education, such as the highest attained VET position reported (chemist, average gross earning: greater than 6,450 euros, ISEI score: 83.50)—were extremely rare, leading us to conclude that such high values were inconsequential for our analyses.

<sup>4</sup> The specific occupations used are as follows—in the order given in the text: *Assistent – Gesundheits- und Sozialwesen* [assistant – health and social work], *Qualitätskontrollleur* [quality controller], *Fachlagerist* [warehouse clerk], *Architekt* [architect], *Stadt- und Regionalplaner* [urban and regional planner], *Verkehrsplaner* [traffic planner], *Landschaftsarchitekt* [landscape architect], *Richter* [judge], *Ambulanter Pfleger* [ambulant carer], *Betreuungskraft / Alltagsbegleiter* [care worker / daily companion], *Fachkraft – Sozialarbeit* [specialist – social work], *Chemiker* [chemist].

## 4.2. Predicting the AAG

Next, we present the findings from the two-part regression model predicting the AAG.

### 4.2.1. Predicting who experienced an AAG (Model Part I)

**Table 2** displays the regression coefficients (average marginal effects [AMEs]) from a model predicting the probability of experiencing an AAG. Positive associations indicate that a variable is linked to a higher risk of experiencing an AAG, whereas negative associations indicate that it is linked to a lower risk. Recall that we standardized all continuous independent variables so that the coefficients for these predictors indicate by how much the risk of experiencing an AAG changes (in %) for a one standard deviation increase in the predictor. Unstandardized coefficients can be found in **Table D1** in Appendix D.

The first column of **Table 2** presents the total effects of the predictors on the risk of experiencing an AAG—that is, the sum of the direct and indirect effects. Few effects were statistically significant, and most effect sizes were small to moderate. Two sociostructural characteristics showed total effects on the risk of an AAG: Having a migration background was linked to a 9.6%–13.6% higher risk of experiencing an AAG, and a 1  $SD$  (or 1.4 raw scale points) higher cultural capital was linked to a 3.3% higher risk. In addition, higher Openness predicted a 2.7% higher risk of experiencing an AAG (for a 1  $SD$  increase in Openness, i.e., 0.9 scale points), and lower school grades predicted a 2.3% higher risk of an AAG (for 1  $SD$  lower grades, i.e., 0.6 grade points). The maximum difference between a student scoring at the lowest possible school grade (i.e., 1) and the highest possible grade (i.e., 6) was  $(6-1) \times 3.8\% = 19.0\%$ , which is sizeable, and larger than that of all other variables. The maximum difference for Openness was 11.6%, which was larger than that of migration background and similar to that of cultural capital (12.0%).

However, closer inspection revealed that behind several of these total effects—even those that were small and statistically non-significant—there were several direct and indirect effects. Most of these direct and indirect effects were in opposite directions, so that the effects offset each other (indicating suppression effects). Next, we disentangle



**Table 2**  
Predicting the Risk of Experiencing an AAG (Model Part I).

	Total effects			Direct effects			Indirect effects through aspirations		
	AME	95% CI	<i>p</i>	AME	95% CI	<i>p</i>	AME	95% CI	<i>p</i>
Aspirations				<b>.248</b>	[.232, .263]	<.001			
<i>Sociostructural characteristics</i>									
Parental SES	.014	[−.007, .035]	.191	−.024	[−.043, −.004]	.014	<b>.038</b>	[.027, .050]	<.001
Cultural capital	<b>.033</b>	[.012, .054]	.003	.010	[−.009, .028]	.301	<b>.023</b>	[.012, .034]	<.001
First-generation migrant*	<b>.136</b>	[.040, .232]	.005	.054	[−.028, .137]	.199	<b>.082</b>	[.036, .131]	.001
Second-generation migrant*	<b>.096</b>	[.034, .158]	.002	.023	[−.032, .075]	.410	<b>.074</b>	[.045, .104]	<.001
Female*	.011	[−.030, .053]	.600	−.120	[−.156, −.083]	<.001	<b>.131</b>	[.112, .152]	<.001
<i>Cognitive ability and school grades</i>									
Cognitive ability	−.007	[−.027, .013]	.500	−.016	[−.033, .001]	.066	.009	[−.001, .019]	.070
School grades <sup>a</sup>	−.023	[−.043, −.002]	.029	−.034	[−.052, −.017]	<.001	<b>.012</b>	[.002, .021]	.014
<i>Personality traits</i>									
Extraversion	.014	[−.007, .035]	.183	.009	[−.010, .029]	.334	.005	[−.006, .015]	.365
Agreeableness	−.014	[−.033, .006]	.172	−.020	[−.037, −.002]	.028	.006	[−.004, .016]	.246
Conscientiousness	−.016	[−.039, .007]	.176	−.007	[−.026, .012]	.455	−.009	[−.019, .002]	.104
Emotional Stability	.012	[−.012, .035]	.305	.001	[−.020, .020]	.958	<b>.012</b>	[.001, .022]	.029
Openness	<b>.027</b>	[.005, .049]	.015	.016	[−.004, .036]	.119	<b>.011</b>	[.001, .021]	.031
Search duration				<b>.030</b>	[.010, .049]	.002			

Note. AAG = aspiration–attainment gap; CI = confidence interval; SES = socioeconomic status. *N* = 2,478 (*n* = 1,138 for AAG < 0; *n* = 1,340 for no AAG). Coefficients significant at the *p* < .05 level are in bold type. Continuous coefficients are standardized with regard to *X* (the independent variables) but not *Y* (the dependent variable, i.e., the AAG). Variables marked with an asterisk (\*) are not standardized.

<sup>a</sup> Higher values reflect higher grades.

direct effects from indirect effects through aspirations to gain a better understanding of each predictor’s role.

The second column of Table 2 displays the direct effects of the predictors, and the effect of aspirations (which was a mediator in our models). The level of aspirations was by far the strongest predictor of the risk of experiencing an AAG: An increase in aspirations of 1 *SD* (i.e., 16.7 ISEI scores) corresponded to a 24.8% higher probability of experiencing an AAG. In other words, the higher students’ aspirations were, the greater was their risk of not realizing them. Male gender was also associated with a higher risk of experiencing an AAG (12.0% higher probability); 1 *SD* lower school grades resulted in a 3.4% higher probability; 1 *SD* (i.e., 6.6 months) longer search durations resulted in a 3.0% higher probability; 1 *SD* (i.e., 18.3 ISEI scores) lower parental SES resulted in a 2.4% higher probability; and 1 *SD* (i.e., 0.7 scale points) lower Agreeableness resulted in a 2.0% higher probability of experiencing an AAG. The maximum difference between a person with the lowest possible level of the respective predictor and a person with the highest possible level changed the order of the single predictors in terms of strength slightly: With 116.1%, higher aspirations had by far the largest influence on the risk of an AAG, followed by lower grades (28.5%), longer search durations (26.5%), lower Agreeableness (12.0%), male gender (12.0%), and lower parental SES (7.7%). Because the direct effects correspond to the effects on the AAG when controlling for aspirations, they can be interpreted as effects related to students’ attainment of a VET position.

The last column of Table 2 shows the indirect effects through aspirations. Via aspirations, female gender turned out to be most strongly related to a higher risk of experiencing an AAG (13.1% higher probability), followed by having a migration background (7.4%–8.2% higher probability). Moreover, via aspirations, 1 *SD* higher parental SES predicted a 3.8% higher probability of experiencing an AAG; 1 *SD* higher cultural capital predicted a 2.3% higher probability; 1 *SD* higher school grades predicted a 1.2% higher probability; 1 *SD* (i.e., 0.8 scale points) higher Emotional Stability predicted a 1.2% higher probability; and 1 *SD* higher Openness predicted a 1.1% higher probability. The maximum difference between a student with the lowest possible level of the respective predictor and a student with the highest possible level barely changed the order of the single predictors in terms of strength: Once again, higher parental SES, mediated by aspirations, had the strongest effect on the risk of experiencing an AAG (15.5% higher probability).

With a 9.5% higher probability of experiencing an AAG, higher school grades, mediated by aspirations, were somewhat more predictive of experiencing an AAG than higher cultural capital (8.5% higher probability), a migration background, higher Emotional Stability (5.6% higher probability), and higher Openness (4.8% higher probability).

Regarding the effects of the various characteristics on the level of aspirations (i.e., the mediator), we found that aspirations were higher in some social groups than in others. Socio-structural characteristics, in particular, were associated with occupational aspirations: Higher parental SES, higher cultural capital, a migration background, and female gender predicted higher aspirations. With respect to the Big Five, only higher Emotional Stability and higher Openness were related to higher aspirations. Furthermore, higher school grades had a positive effect on the level of aspirations. Detailed results can be found in Appendix E.

#### 4.2.2. Predicting the size of the AAG (Model Part II)

Model Part II predicted the size of the AAG among the 1,138 students who experienced an AAG (i.e., attainment < aspirations). Table 3 shows the regression (path) coefficients from a model predicting the size of the AAG. Recall that all continuous independent variables were standardized; unstandardized coefficients can be found in Table D2 in Appendix D. A positive association means that the gap increases in size, whereas a negative association means that the gap decreases in size.

The first column of Table 3 presents the total effects of the predictors on the size of the AAG. Of the sociostructural characteristics, precisely the two variables that had no effect in Model Part I showed an association with the size of the AAG in the case of total effects: Gender had the largest effect on the size of the AAG, followed by parental SES. The AAGs of females were 3.6 ISEI points larger than those of males, and a 1 *SD* higher parental SES was linked to a 1.0 ISEI points larger AAG. Of the Big Five, 1 *SD* (i.e., 0.9 scale points) lower Conscientiousness was associated with 1.0 ISEI points larger AAGs.

However, once again behind several of these (significant or non-significant) total effects there were several direct or indirect effects, some of which were in opposite directions. The second column of Table 3 displays the direct effects of the predictors on the size of the AAG (which, because of how the model is constructed, are equivalent to the predictors’ effects on attainment while controlling for aspirations). In contrast to Model Part I, sociostructural characteristics did not predict

**Table 3**  
Predicting the Size of the AAG of Those Who Experienced a Gap (Model Part II).

	Total effects			Direct effects			Indirect effects through aspirations		
	<i>b</i>	95% CI	<i>p</i>	<i>b</i>	95% CI	<i>p</i>	<i>b</i>	95% CI	<i>p</i>
Aspirations				<b>8.519</b>	[7.890, 9.186]	<.001			
<i>Sociostructural characteristics</i>									
Parental SES	<b>1.019</b>	[0.224, 1.826]	.013	-0.288	[-0.951, 0.371]	.394	<b>1.307</b>	[0.919, 1.705]	<.001
Cultural capital	0.214	[-0.592, 0.991]	.599	-0.584	[-1.282, 0.104]	.099	<b>0.798</b>	[0.429, 1.181]	<.001
First-generation migrant*	1.398	[-1.933, 4.965]	.420	-1.419	[-4.449, 1.874]	.377	<b>2.817</b>	[1.261, 4.438]	<.001
Second-generation migrant*	1.563	[-0.354, 3.549]	.120	-0.969	[-2.748, 0.841]	.290	<b>2.532</b>	[1.540, 3.591]	<.001
Female*	<b>3.633</b>	[2.117, 5.178]	<.001	-0.872	[-2.343, 0.590]	.241	<b>4.505</b>	[3.880, 5.200]	<.001
<i>Cognitive ability and school grades</i>									
Cognitive ability	-0.069	[-0.825, 0.723]	.861	-0.385	[-1.062, 0.340]	.280	0.315	[-0.034, 0.659]	.073
School grades <sup>a</sup>	0.707	[-0.005, 1.413]	.052	0.306	[-0.344, 0.977]	.359	<b>0.401</b>	[0.077, 0.726]	.014
<i>Personality traits</i>									
Extraversion	0.049	[-0.727, 0.821]	.900	-0.113	[-0.771, 0.537]	.736	0.162	[-0.182, 0.526]	.366
Agreeableness	0.622	[-0.157, 1.414]	.122	0.414	[-0.278, 1.111]	.241	0.208	[-0.140, 0.565]	.248
Conscientiousness	<b>-0.969</b>	[-1.782, -0.166]	.018	-0.676	[-1.426, 0.064]	.073	-0.294	[-0.651, 0.062]	.108
Emotional Stability	-0.289	[-1.017, 0.463]	.449	<b>-0.688</b>	[-1.340, -0.003]	.046	<b>0.399</b>	[0.047, 0.760]	.027
Openness	0.096	[-0.677, 0.835]	.804	-0.285	[-1.025, 0.412]	.435	<b>0.381</b>	[0.036, 0.731]	.031
Search duration				<b>-1.004</b>	[-1.599, -0.344]	.002			

Note. AAG = aspiration–attainment gap; CI = confidence interval; SES = socioeconomic status.  $N = 2,478$  ( $n = 1,138$  for AAG < 0;  $n = 1,340$  for no AAG). Coefficients significant at the  $p < .05$  level are in bold type. Continuous coefficients are standardized with regard to  $X$  (the independent variables) but not  $Y$  (the dependent variable, i.e., the AAG). Variables marked with an asterisk (\*) are not standardized.

<sup>a</sup> Higher values reflect higher grades.

the size of the AAG. As with Model Part I, aspirations again had the strongest effect, meaning that 1 *SD* higher initial aspirations corresponded to 8.5 ISEI points larger AAGs. Moreover, 1 *SD* lower Emotional Stability was associated with 0.7 ISEI points larger AAGs, and 1 *SD* shorter search durations were associated with 1.0 ISEI points larger AAGs.

The last column of Table 3 shows the indirect effects mediated by aspirations. With respect to the indirect effects, we found the exact same pattern of significant predictors as we did in Part I, because these characteristics predicted occupational aspirations (see Appendix E). All sociostructural characteristics indirectly contributed—via aspirations—to the size of the AAG, indicating that, mediated by aspirations, larger AAGs were indirectly predicted by 1 *SD* higher parental SES (1.3 ISEI points larger AAGs), 1 *SD* higher cultural capital (0.8 ISEI points larger AAGs), being female (4.5 ISEI points larger AAGs), and a migration background (2.5–2.8 ISEI points larger AAGs). Furthermore, 1 *SD* higher school grades (0.4 ISEI points larger AAGs), 1 *SD* higher Emotional Stability (0.4 ISEI points larger AAGs), and 1 *SD* higher Openness (0.4 ISEI points larger AAGs) were indirectly related to larger AAGs via aspirations. Emotional Stability had a direct negative effect on the size of the AAG related to students' attainment of a VET position and, via aspirations, a positive indirect effect on the size of the AAG, resulting in a non-significant total effect—that is, a suppression effect.

## 5. Discussion

The present study proposes a new perspective on successful school-to-work transitions by focusing on students' ability, or inability, to realize their occupational aspirations, that is, the aspiration–attainment gap (AAG)—or the absence thereof. More specifically, we investigated this gap in intermediate secondary school (*Realschule*) students in Germany who transitioned to their first VET position after finishing compulsory schooling in Grade 10.

### 5.1. Distribution of the occupational AAG

Our first aim was to ascertain the *prevalence* of how many students in our sample experienced an AAG after the transition from school to VET, and the *magnitude* of how large this gap was among those who experienced it. Our analyses showed that about one half of the students were

able to realize or even exceed their occupational aspirations, which means that their *realistic* occupational aspirations were indeed quite realistic. However, there was a substantial percentage of students (45.9%) whose VET positions fell short of their occupational aspirations in terms of SES—that is, these students experienced an AAG.

Experiencing an AAG is problematic for two reasons. First, experiencing an AAG is associated with lower well-being, job satisfaction, and higher levels of depressive symptoms (e.g., Carr, 1997; Hardie, 2014; Nießen et al., 2021). Second, a discrepancy between aspirations and attainment is likely to have unfavorable long-term effects on career development (as surmised, e.g., by Tomasik et al., 2009). The average discrepancy between the SES of the occupational aspirations and the attained VET position among those who experienced an AAG was  $-20.14$ ; extreme AAG values (i.e., deciles above 90%, that is, values larger than  $-43$ ) were rare.

One explanation for the few extremely high AAG values that we observed might be that students with the highest aspirations ( $\leq 88.96$ ) had exaggerated and unrealistic ideas about their possibilities. For example, it is very unlikely that someone with an intermediate school-leaving qualification will become a judge. Another reason might be that some students hope to attain a seemingly unattainable profession (e.g., doctor) via second-chance education, for instance by going to university after completing their VET (e.g., as a nurse or a paramedic). In Germany, the number of those who start tertiary education without completing the upper level of *Gymnasium* and passing the *Abitur* examination (i.e., who have acquired their higher education entrance qualification through VET in combination with work experience; for more details, see Nickel et al., 2020) has risen steadily over the last two decades but still represents only a small percentage. In 2018, the proportion of higher education students without *Abitur* was 2.2%, and the proportion of university graduates without *Abitur* was 1.8% (Nickel et al., 2020). Moreover, people who undergo VET usually stay in the occupation for which they have trained. In addition, it is not easily possible for non-college-bound students to continue their education after completing VET with subsequent tertiary education.

For these reasons, we consider the AAG to be a generally undesirable (yet underappreciated) phenomenon, which calls for the development of policy measures and interventions. To avoid disappointment, on the one hand, students could be given support in forming aspirations so that aspirations—though they should be as high as possible—remain within

reachable bounds. On the other hand, institutions should support students in fulfilling their aspirations—especially, in the case of disadvantaged groups who have greater difficulty in finding a VET position (e.g., those with a migration background or lower cognitive ability; see, e.g., Nießen et al., 2020). In concrete terms, for example, career counseling could also take on a mediation function by providing contacts to companies and helping with networking.

## 5.2. What explains the occupational AAG?

Our second aim was to identify *predictors* (i.e., possible determinants) of the occupational AAG. The initial level of aspirations emerged as the strongest predictor. A 1 *SD* (about 17 ISEI scores) increase in aspirations corresponded to an almost 25% higher risk of experiencing an AAG, and to an about 9 ISEI points larger AAG among those who experienced it. At first glance, these effects seem to be inconsistent with previous findings showing that higher aspirations predict higher occupational attainment (e.g., Rojewski, 2005; Schoon & Polek, 2011). Whereas their positive effects on attainment portray higher aspirations as something generally desirable, our results alert to the fact that higher aspirations also entail a higher risk of not realizing these aspirations. Simply put, higher aspirations may foster attainment, but at the same time they may render students more prone to failure. This may indicate that high *realistic* aspirations are often not a truly realistic reflection of students' actual abilities and their chances on the labor market, especially among students who are disadvantaged and lack key resources and abilities.

A second key finding was that aspirations—besides predicting the AAG incrementally, over and above all other predictors in our model—also mediated the effects of several other predictors on the AAG. Thus, aspirations played a dual role in determining whether someone experienced an AAG or not. Sociostructural characteristics, in particular, were indirectly related to the AAG via occupational aspirations. This is in line with our expectations and consistent with previous findings in the literature whereby higher parental SES (e.g., Kay et al., 2016; Salikutluk, 2013; Schoon & Polek, 2011), higher cultural capital (e.g., Wicht, 2016), a migration background (e.g., McElvany et al., 2018; Salikutluk, 2013), and being female (e.g., Guo et al., 2015; Schoon & Polek, 2011; Wicht et al., 2022) are related to higher aspirations (see Appendix E). Higher school grades were also indirectly associated with the risk and size of an AAG, which is in line with evidence from previous studies that higher educational achievement is related to higher aspirations (e.g., Kay et al., 2016; Salikutluk, 2013). In both model parts (higher risk of an AAG, and the size of the AAG when it was experienced), the same variables predicted the AAG.

A third main finding was that some non-existing and non-significant total effects masked the presence of direct and indirect effects. Looking at and interpreting total effects alone would therefore be potentially misleading because direct and indirect effects were often in opposite directions—that is, their algebraic signs were reversed—and cancelled each other out, resulting in a zero total effect. To be precise, on the one hand, after statistically controlling for aspirations (i.e., holding aspirations constant), higher parental SES, female gender, and higher Emotional Stability predicted higher attainment, and hence a lower risk of experiencing an AAG (or a greater chance of experiencing a smaller AAG). That is, these characteristics and resources were directly advantageous for the AAG. On the other hand, by raising aspirations, the same characteristics indirectly increased the risk of experiencing an AAG (or of experiencing a larger AAG) and, thus, turned out to be disadvantageous for the AAG, demonstrating that higher aspirations of students with, for example, higher parental SES are not necessarily beneficial.

What are the reasons for the divergent indirect and direct effects of

many characteristics? As outlined in the theory section, individual characteristics may be relevant for the levels of both aspirations and attainment. The levels of these variables reflect individual self-selection processes and/or institutional selection processes that might underlie differences in the risk of experiencing an AAG. In the case of the direct effects, the findings suggest that a more disadvantaged social background (lower family resources, e.g., parental SES), a lower level of educational achievement (in terms of educational qualifications or school grades), and lower personal resources (lower levels of individual psychosocial and self-regulatory resources, e.g., Emotional Stability and Agreeableness) predicted higher risks of an AAG. This is in line with our expectations that in the selection process these characteristics might act as signals to employers of VET institutions that applicants are less suitable (e.g., Caldwell & Burger, 1998; Nießen et al., 2020; Protsch & Dieckhoff, 2011). Because these characteristics were either associated with lower aspirations or not associated with aspirations at all, students who displayed them did not have exaggerated aspirations.

By contrast, in the case of indirect effects, by raising aspirations, higher individual resources and higher school grades were the characteristics that predicted higher risks of experiencing an AAG and larger AAG sizes. One possible interpretation is that a privileged social background (e.g., higher parental SES, cultural capital), higher school achievement (i.e., grades), and higher psychosocial and self-regulatory resources (i.e., Emotional Stability, Openness) might encourage higher aspirations (see Schoon & Heckhausen, 2019), even though these aspirations might be unattainable. Thus, students with these characteristics were more likely to harbor aspirations that may be unrealistically high.

A fourth main finding is that the risk of experiencing an AAG (*prevalence*) could be better predicted than the size of the AAG (*magnitude*). This could be due to the fact that the sample variance of those who experienced an AAG was restricted, and that the sample size was smaller (54% of the original sample). Lower parental SES, male gender, lower school grades, and lower Agreeableness were directly associated with a higher risk of an AAG, whereas, for the prediction of the size of the AAG, lower Emotional Stability was the only one of our focal predictors to be associated with larger AAG sizes. The direction of the effects are in line with our expectations and with earlier findings that lower parental SES (e.g., Croll & Attwood, 2013; Damian et al., 2015; Kay et al., 2016), male gender (e.g., Buttaro et al., 2010; Mello, 2008; but cf. Damian et al., 2015; Paat, 2015, who reported the opposite), lower school grades, (e.g., Buttaro et al., 2010; Paat, 2015), lower Agreeableness, and lower Emotional Stability (e.g., Damian et al., 2015; Hogan & Holland, 2003) predict lower attainment.

The reason why cognitive ability had no influence—either directly or indirectly—on the AAG remains unclear and needs further investigation. The possibility that the effect of school grades might have suppressed the effect of cognitive ability does not appear plausible, because both measures showed a correlation of only  $r = .10$ . Obviously, visible school achievement, as opposed to unobservable cognitive ability, is decisive in the selection process. This is in line with signaling theory (e.g., Spence, 1974). On a side note, school grades were the only variable that showed direct, indirect, and total effects on the risk of an AAG.

Given the lack of previous studies on the predictive relationship between the Big Five and aspirations, our finding that higher Emotional Stability and higher Openness (for Openness, see Rottinghaus et al., 2002) were associated with higher aspirations is an important contribution to research on aspirations. Apart from the study by Rottinghaus et al. (2002), we could find only one other study that used at least two of the global Big Five dimensions, namely Extraversion and Emotional Stability (Marjoribanks, 1992), but did not find any effects of 12-year-old children's personalities on their educational and occupational aspirations.

Furthermore, the results of the present analyses show that longer search durations (i.e., the time between school graduation and entering the first VET position) also predicted a higher risk of experiencing an AAG (*prevalence*). We interpret this as reflecting a negative signaling effect of time spent in unemployment (see signaling theory; e.g., Spence, 1974). By contrast, the *magnitude* of AAGs that occurred in students with shorter search durations tended to be greater. This might be because these students picked the first available VET position and did not have the resources to wait for something better. Future research is required to scrutinize these patterns more closely.

### 5.3. Limitations and directions for future research

Although this study was—to our knowledge—the first to analyze the occupational AAG in terms of the discrepancy between the SES of individuals' occupational aspirations and their attained VET positions, some limitations should be mentioned. First, we focused on the transition to VET of school leavers from intermediate secondary schools [*Realschulen*] in Germany. Future research should extend our analyses of the AAG to school leavers from other school types, such as academically oriented secondary schools (e.g., in Germany, the *Gymnasium*), who transition to either VET or tertiary education. Moreover, although starting VET is the first step in the labor market, and determines subsequent career options, our analyses examined only this specific educational transition in one specific country, namely Germany. Further research is needed to extend these findings and to figure out whether our results are generalizable to other education systems and transitions such as from VET to the labor market, or whether there are differences between education structures in international comparisons.

Second, only short measures to capture the Big Five personality traits and cognitive ability were available in the data. Although the BFI-10 (Rammstedt & John, 2007) predicts a broad range of criteria, and sometimes does so even better than longer Big Five scales (e.g., Rammstedt et al., 2020; Thalmayer et al., 2011), the internal consistency of the personality dimensions and of the cognitive ability test, NEPS-MAT (Pohl & Carstensen, 2012) were relatively low in the present sample, as is often the case for short scales. Thus, effects of personality and cognitive ability are likely to be conservative estimates. Future studies might garner further insights by using more extensive scales to measure the Big Five and cognitive ability, ideally scales that also allow for a more fine-grained facet-level perspective.

Finally, although there are strong reasons to assume that an AAG is detrimental to job satisfaction, work motivation, and career progression, an important task for future research is to establish the extent to which the AAG actually has such negative consequences for individuals who experience it, and how profound and long-lasting these consequences may be. Experiencing an AAG might also have positive consequences, such as motivating a person to return to education or choose a different career track (Schoon & Heckhausen, 2019). Hence, more longitudinal research is needed. For example, future research could analyze both the AAG's influence on the further occupational biography (success in terms of completion of VET, dropout from VET, etc.) and the personal influence (concerning loss of talent, well-being, motivation, etc.). In this context, future research should also consider the AAG multidimensionally. We focused on the SES because it is particularly important for career and life prospects. However, comparing the predictors and consequences with regard to different occupational characteristics (e.g., gender typicality, income, average company size, type of work, occupational field, etc.) would expand and complement the picture of the AAG.

## 6. Conclusion

Our analyses revealed that the AAG is quite prevalent: A substantial

share of our sample of non-college-bound students (45.9%) in Germany was unable to attain a VET position that matched their prior aspirations in terms of the SES it confers. However, not all youth were equally likely to experience an AAG: The level of aspirations emerged as the strongest predictor, and it also mediated the effect of other predictors, most importantly higher parental SES and higher school grades. Some individual resources proved to be doubly important: On the one hand, they indirectly increased the risk of experiencing an AAG by raising aspirations; on the other hand, they lowered this risk by directly increasing attainment. Furthermore, our results caution that higher aspirations are not necessarily beneficial: Although they may foster attainment, they also entail a higher risk of failure, especially if aspirations exceed students' actual chances on the labor market, given their set of resources and abilities. This is the case particularly in highly structured education systems (in the less structured context of societies such as the United States, where social climbing is more likely, being overambitious can be helpful to achieve goals [e.g., Heckhausen & Chang, 2009]).

To conclude, our findings show that the AAG is a widespread phenomenon that is not randomly distributed but can be predicted partly from students' sociostructural and individual characteristics. The present investigation makes an important contribution both to examining the distribution of the occupational AAG and determining the role of different types of possible influences that operate simultaneously on the occupational AAG of non-college-bound students in the context of the highly structured transition system at entry to VET in Germany. Because failure to meet one's own expectations may lead to diminished work motivation and dissatisfaction as well as hamper one's future career, we submit that the AAG merits closer examination in future research—and may deserve the attention of practitioners and political decision makers.

### CRedit authorship contribution statement

**Désirée Nießen:** Conceptualization, Funding acquisition, Methodology, Formal analysis, Writing – original draft, Writing – review & editing. **Alexandra Wicht:** Conceptualization, Funding acquisition, Methodology, Data curation, Formal analysis, Writing – review & editing, Supervision. **Ingrid Schoon:** Writing – review & editing. **Clemens M. Lechner:** Conceptualization, Funding acquisition, Methodology, Writing – review & editing, Supervision.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Acknowledgements

This work was supported by a grant from the Netzwerk Bildungsforschung of the Baden-Württemberg Stiftung [grant number AZ 1.15304.00 – PASS].

### Funding

This work was supported by a grant from the Netzwerk Bildungsforschung of the Baden-Württemberg Stiftung [grant number AZ 1.15304.00 – PASS] to Alexandra Wicht, Désirée Nießen, and Clemens Lechner. Ingrid Schoon received funding from the UK Economic and Social Research Council (ESRC) [grant number ES/V01577X/1]. The publication of this article was funded by the Open Access Fund of the Federal Institute for Vocational Education and Training, Germany.



**Appendix A. Country context**

The German school system is characterized by a high degree of stratification and early tracking. In fourth grade (at age 10), after typically four years of primary school, students are selected into different school types: *Hauptschule*, “a type of school at lower secondary level providing a basic general education, usually comprising Grades 5 to 9” (Secretariat of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany [KMK], 2019); *Realschule* (intermediate secondary school), “a type of school at lower secondary level providing a more extensive general education, usually comprising Grades 5–10” (KMK, 2019); and *Gymnasium*, “a type of school covering both lower and upper secondary levels (Grades 5–12 or 5–13) providing an in-depth general education aimed at the general higher education entrance qualification” (KMK, 2019).

*Hauptschule* graduates may leave the (general) education system after ninth grade (at age 15), *Realschule* graduates leave after tenth grade (at age 16), and graduates from *Gymnasium* after twelfth or thirteenth grade (at age 18 or 19). Whereas graduates from *Gymnasium* are entitled to study at a university or a university of applied sciences (*Fachhochschule*; or to take up vocational education and training [VET]), *Hauptschule* and *Realschule* graduates are eligible only to take up VET (however, *Realschule* graduates with a certain grade point average may attend upper *Gymnasium* level to obtain a higher education entrance qualification). In general, about half of all school leavers in Germany transition to VET; the other half starts tertiary education, or continues general schooling in order to obtain a higher education entrance qualification (Statistisches Bundesamt, 2019).

In the context of the German dual training system, which provides initial vocational training before labor market entry (Protsch & Soga, 2016), VET combines an on average 3-year company-based training in a specific occupation or trade with a vocational-school-based education in occupation-related subjects, such as accounting, hygiene, or medical engineering (e.g., Heckhausen & Tomasik, 2002). For example, in some dual training structures, trainees attend vocational school 2 days a week; in others, 2-week periods of in-company training alternate with 2-week periods at a vocational school.

Access to VET itself is highly stratified by school attainment (Protsch & Solga, 2016) because not all VET programs are accessible for all graduates. There are low-skilled occupations, such as baker, landscape gardener, or plumbing and heating installer, that require only a basic school-leaving qualification (*Hauptschulabschluss*). Skilled occupations, such as mechatronics technician, industrial mechanic, or management assistant in wholesale, require an intermediate school-leaving qualification (*Mittlere Reife*). Professional occupations, such as bank clerk, insurance clerk, or IT specialist, require a higher education entrance qualification (*Abitur*). As a consequence, sorting students into different educational trajectories—that is, vocational or academic tracks—as early as age 10 make different options possible in the further life course (Becker, 2019). This results in large differences and social inequalities in labor market opportunities and career prospects, given that upward occupational career mobility is very rare in Germany (Protsch & Solga, 2016).

**Appendix B. Correlations between the variables**

	Aspirations	Attained VET position	AAG	Parental SES	Cultural capital	Ethnic origin	Gender	Cognitive ability	School grades <sup>a</sup>	Extraversion	Agreeableness	Conscientiousness	Emotional Stability	Openness
Attained VET position	.42***													
AAG	.69***	-.30***												
Parental SES	.14***	.10***	.07***											
Cultural capital	.13***	.06**	.07***	.28***										
Migration background	.08***	.02	.08***	-.17***	-.16***									
Female	.24***	.25***	.05*	-.11***	-.02	.04								
Cognitive ability	.04	.05*	.00	.07**	.13***	-.08***	-.10***							
School grades <sup>a</sup>	.04*	.07***	-.02	-.07**	.07***	-.11***	.05**	.10***						
Extraversion	.04	.01	.05*	.06**	.03	.05*	-.01	-.07**	.05*					
Agreeableness	.06**	.05**	-.00	-.03	-.01	.03	.13***	.01	-.04	-.11***				
Conscientiousness	.02	.06**	-.05*	-.11***	-.02	-.00	.18***	-.12***	-.21***	.01	.25***			
Emotional Stability	.01	-.01	.02	.07***	.04	-.02	-.21***	.04	-.02	.29***	.03	.05**		
Openness	.12***	.06**	.08***	.04*	.12***	.07**	.18***	.04	.04*	.03	.14***	.10***	.03	
Search duration	.06**	.04*	.05*	-.02	-.04*	.05*	.09***	-.03	.10***	-.02	-.03	-.03	-.05*	.05*

Note. VET = vocational education and training; SES = socioeconomic status; AAG = aspiration–attainment gap.  $N = 2,478$  ( $N_{\text{parental SES}} = 2,226$ ,  $N_{\text{cultural capital}} = 2,371$ ,  $N_{\text{cognitive ability}} = 2,348$ ,  $N_{\text{school grade}} = 2,463$ ,  $N_{\text{extraversion}} = 2,348$ ,  $N_{\text{agreeableness}} = 2,341$ ,  $N_{\text{conscientiousness}} = 2,368$ ,  $N_{\text{emotional stability}} = 2,360$ ,  $N_{\text{openness}} = 2,366$ ).

<sup>a</sup> Higher values reflect higher grades.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

**Appendix C. Decentiles of the variables aspirations, attained VET position, and AAG for those who experienced a gap**

Variables	10%	20%	30%	40%	50%	60%	70%	80%	90%
Aspirations	32.50	36.92	46.38	51.50	52.72	56.00	67.94	74.00	79.74
Attained VET position	21.64	25.26	28.48	29.16	31.72	36.35	43.19	44.94	52.72
AAG	-3.00	-5.00	-8.00	-12.00	-16.00	-23.00	-28.00	-33.00	-43.00

Note. VET = vocational education and training; AAG = aspiration–attainment gap.  $N = 1,138$ .

Appendix D

**Table D1**  
Unstandardized Regression Coefficients for Predicting the Risk of Experiencing an AAG (Model Part I).

	Total effects			Direct effects			Indirect effects through aspirations		
	AME	95% CI	p	AME	95% CI	p	AME	95% CI	p
Aspirations				<b>.015</b>	[.014, .016]	<.001			
<i>Sociostructural characteristics</i>									
Parental SES	.001	[.000, .002]	.191	-.001	[-.002, .000]	.014	<b>.002</b>	[.001, .003]	<.001
Cultural capital	<b>.024</b>	[.009, .040]	.003	.007	[-.006, .021]	.301	<b>.017</b>	[.009, .025]	<.001
First-generation migrant	<b>.136</b>	[.040, .232]	.005	.054	[-.028, .137]	.199	<b>.082</b>	[.036, .131]	.001
Second-generation migrant	<b>.096</b>	[.034, .158]	.002	.023	[-.032, .075]	.410	<b>.074</b>	[.045, .104]	<.001
Female	.011	[-.030, .053]	.600	-.120	[-.156, -.083]	<.001	<b>.131</b>	[.112, .152]	<.001
<i>Cognitive ability and school grades</i>									
Cognitive ability	-.003	[-.012, .006]	.500	-.007	[-.014, .000]	.066	.004	[.000, .008]	.070
School grades <sup>a</sup>	-.038	[-.072, -.004]	.029	-.057	[-.087, -.027]	<.001	<b>.019</b>	[.004, .035]	.014
<i>Personality traits</i>									
Extraversion	.016	[-.008, .040]	.183	.011	[-.012, .033]	.334	.005	[-.006, .017]	.365
Agreeableness	-.021	[-.050, .009]	.172	-.030	[-.056, -.003]	.028	.009	[-.006, .025]	.246
Conscientiousness	-.019	[-.045, .009]	.176	-.009	[-.031, .014]	.455	-.010	[-.022, .002]	.104
Emotional Stability	.014	[-.014, .041]	.305	.001	[-.024, .024]	.959	<b>.014</b>	[.002, .027]	.029
Openness	<b>.029</b>	[.005, .052]	.015	.017	[-.004, .038]	.119	<b>.012</b>	[.001, .022]	.031
Search duration				<b>.005</b>	[.002, .007]	.002			

Note. AAG = aspiration-attainment gap; CI = confidence interval; SES = socioeconomic status. N = 2,478 (n = 1,138 for AAG < 0; n = 1,340 for no AAG). Coefficients significant at the p <.05 level are in bold type.

<sup>a</sup> Higher values reflect higher grades.

**Table D2**  
Unstandardized Regression Coefficients for Predicting the Size of the AAG of Those Who Experienced a Gap (Model Part II).

	Total effects			Direct effects			Indirect effects through aspirations		
	b	95% CI	p	b	95% CI	p	b	95% CI	p
Aspirations				<b>0.557</b>	[0.520, 0.594]	<.001			
<i>Sociostructural characteristics</i>									
Parental SES	<b>0.058</b>	[0.014, 0.102]	.010	-0.020	[-0.055, 0.015]	.266	<b>0.078</b>	[0.055, 0.102]	<.001
Cultural capital	0.237	[-0.370, 0.816]	.435	-0.409	[-0.917, 0.087]	.110	<b>0.646</b>	[0.345, 0.952]	<.001
First-generation migrant	1.838	[-1.550, 5.300]	.287	-1.245	[-4.240, 1.913]	.426	<b>3.083</b>	[1.362, 4.856]	<.001
Second-generation migrant	1.875	[-0.047, 3.835]	.062	-0.895	[-2.606, 0.866]	.312	<b>2.770</b>	[1.682, 3.920]	<.001
Female	<b>3.668</b>	[2.176, 5.212]	<.001	-1.261	[-2.678, 0.181]	.083	<b>4.930</b>	[4.241, 5.645]	<.001
<i>Cognitive ability and school grades</i>									
Cognitive ability	-0.039	[-0.362, 0.298]	.817	-0.186	[-0.467, 0.116]	.210	0.147	[-0.016, 0.307]	.073
School grades <sup>a</sup>	1.054	[-0.128, 2.223]	.081	0.324	[-0.727, 1.416]	.549	<b>0.730</b>	[0.138, 1.316]	.014
<i>Personality traits</i>									
Extraversion	0.109	[-0.781, 0.986]	.808	-0.094	[-0.815, 0.629]	.800	0.202	[-0.230, 0.656]	.367
Agreeableness	0.879	[-0.303, 2.084]	.150	0.533	[-0.486, 1.560]	.307	0.346	[-0.235, 0.941]	.248
Conscientiousness	-1.196	[-2.140, -0.247]	.013	-0.819	[-1.677, 0.017]	.058	-0.377	[-0.834, 0.081]	.108
Emotional Stability	-0.297	[-1.151, 0.589]	.508	-0.817	[-1.560, -0.035]	.037	<b>0.520</b>	[0.059, 0.992]	.027
Openness	0.195	[-0.614, 0.967]	.631	-0.249	[-1.017, 0.474]	.511	<b>0.444</b>	[0.040, 0.849]	.032
Search duration				-.0138	[-0.226, -0.042]	.003			

Note. AAG = aspiration-attainment gap; CI = confidence interval; SES = socioeconomic status. N = 2,478 (n = 1,138 for AAG < 0; n = 1,340 for no AAG). Coefficients significant at the p <.05 level are in bold type.

<sup>a</sup> Higher values reflect higher grades.

## Appendix E. Regression coefficients for the mediator aspirations regressed on sociostructural characteristics, cognitive ability, school grades, and personality traits

	$b_1$	95% CI	$b_2$	95% CI	$p$
<i>Sociostructural characteristics</i>					
Parental SES	<b>0.141</b>	[0.100, 0.181]	<b>.153</b>	[.109, .197]	<.001
Cultural capital	<b>1.159</b>	[0.622, 1.709]	<b>.094</b>	[.050, .138]	<.001
First-generation migrant*	<b>5.536</b>	[2.447, 8.787]	<b>.331</b>	[.146, .525]	.001
Second-generation migrant*	<b>4.974</b>	[3.030, 6.952]	<b>.297</b>	[.181, .415]	<.001
Female*	<b>8.852</b>	[7.638, 10.032]	<b>.529</b>	[.456, .599]	<.001
<i>Cognitive ability and school grades</i>					
Cognitive ability <sup>a</sup>	0.264	[-0.030, 0.544]	.037	[-.004, .076]	.071
School grades	<b>1.311</b>	[0.237, 2.348]	<b>.047</b>	[.009, .084]	.014
<i>Personality traits</i>					
Extraversion	0.364	[-0.425, 1.164]	.019	[-.022, .061]	.364
Agreeableness	0.621	[-0.427, 1.676]	.024	[-.017, .066]	.246
Conscientiousness	-0.677	[-1.489, 0.143]	-.034	[-.076, .007]	.107
Emotional Stability	<b>0.934</b>	[0.103, 1.786]	<b>.047</b>	[.005, .090]	.028
Openness	<b>0.796</b>	[0.074, 1.510]	<b>.045</b>	[.004, .085]	.030

Note. CI = confidence interval; SES = socioeconomic status.  $N = 2,478$  ( $n = 1,138$  for AAG [aspiration-attainment gap] < 0;  $n = 1,340$  for no AAG). Coefficients significant at the  $p < .05$  level are in bold type. In the case of  $b_2$  coefficients, continuous coefficients are standardized with regard to X (the independent variables) but not Y (the dependent variable, i.e., the AAG). Variables marked with an asterisk (\*) are not standardized.

<sup>a</sup> Higher values reflect higher grades.

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