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Influence of misaligned parents' aspirations on long-term student academic performance

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This article deals with the concept of misaligned parents' aspirations, its relationship with student background characteristics, and its effects on long-term student performance. It is defined as the difference between parents' educational ambitions for their child and the child's actual capacities. Multilevel regression analyses on a sample of 10,433 Dutch students, who were followed for 5 years, showed that misaligned aspirations are related to parental education level and ethnicity, and have a small/medium positive effect on student performance. Based on ecology theory, we proposed that misaligned aspirations relate to differences in parent involvement, student achievement motivation, and teacher expectation bias, and that these factors subsequently influence student performance. The findings, however, indicate that this only applies to teacher expectation bias.

Keywords: misaligned parents' aspirations; student academic performance; student characteristics; teacher expectation bias; ecology theory

Introduction

To fully develop their talents, students need to be challenged. Schools and teachers who offer their students an ambitious and challenging learning environment, therefore, positively influence student performance. The home environment can also make a difference to student performance. Parents have a major influence on how their child develops (Bronfenbrenner, 1986, 1994; Coleman, 1988). The relationship between parents' expectations and student performance has been extensively researched. A review study showed that high parents' expectations result in higher student performance than lower parents' expectations (Yamamoto & Holloway, 2010). Another interesting question is to what extent parents' *aspirations* – their ambitions – for their child influence student performance. Parental aspirations concern the parents' educational wishes for their child; their hopes or demands with respect to the educational level to be attained by their child. This aspired educational level does not have to be real; it can also be irrationally high or low. Parents' expectations, on the other hand, refer to the educational level considered realistic by the parents for their child to attain (Goldenberg, Gallimore, Reese, & Garnier, 2001). As such, we believe that aspirations reflect more strongly than expectations do the importance parents attach to their child's performance

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level. Therefore, parents' aspirations more directly affect the extent to which parents encourage their child to achieve well at school than do their expectations.

The effects of parents' *aspirations* on student performance have not been examined in great detail. Although prior research on this topic did find a relationship between the two constructs, it has not yet been examined whether the aspirations of parents are actually in line with their children's former achievement levels. A relationship between realistic parents' aspirations and student performance is not an extraordinary finding. What is more interesting is whether misaligned aspirations affect student performance. In the current study, therefore, we focused on whether parents' aspirations which deviate from the child's talent and academic achievement affect student performance.

First, we describe the results of prior studies on parental aspirations and provide some theoretical background. Next, we outline the specific topics addressed in the current study, followed by a description of the research data and method. Finally, after presenting and discussing our results, we explain the contributions of our study to theory and practice, and give some suggestions for future research.

Prior research on parents' aspirations

A literature search for the term "parents' aspirations" led to many publications. However, it appeared that a large part of these studies were actually about parents' expectations. Only a few dealt with parents' aspirations. The literature shows that parents' aspirations are fairly stable over time (Goldenberg et al., 2001; Zhang, Haddad, Torres, & Chen, 2011 [Although in the Zhang study it was defined as parents' expectations, the way it was measured is more in line with how we defined aspirations: They asked parents how far they *wanted* their child to go in school]). Creed, Conlon, and Zimmer-Gembeck (2007) investigated 12-year-old students and their parents in Australia. They found that the aspirations of about two thirds of the parents were equal to their expectations. For one third of the parents, there was a discrepancy; their expectations of their child's general ability were lower than their aspirations.

The central question is whether parents' aspirations influence student performance. Schoon, Parsons, and Sacker (2004) and Creed et al. (2007) found a correlation between the two concepts: High parents' aspirations were related to high student academic achievement, and low aspirations to lower achievement levels. This correlation does not imply, however, that parents' aspirations affect student performance. Two other studies with a longitudinal design, and in which prior achievement/IQ were taken into account, provide some more insight into this question and indicate an effect. Van der Hoeven-Van Doornum (1994) examined the influence of Dutch parents' aspirations for students in the second-last year of primary school on student performance in the 4th year of secondary school. She showed that, after correction for prior achievement and IQ, parents' aspirations have a long-term effect on student academic performance. Strand (2011) examined the academic performance of students in Great Britain between ages 11 and 14. He found that parents' aspirations, though measured when students were 14, positively correlated with the progress in attainment. Zhang et al. (2011) furthermore showed that parents' aspirations and student achievement mutually influenced each other. High parents' aspirations were predicted by high prior achievement, and high academic achievement was predicted by high earlier parents' aspirations after prior achievement was controlled for. Conversely, the same applies to low parents' aspirations and low achievement.

Prior research on parents' aspirations has also shown that this concept is related to students' background characteristics. Rodman and Voydanoff (1978) reported the aspirations

of parents for their 2.5- to 5-year-old children, and found that aspirations were higher in higher socioeconomic strata than in lower socioeconomic strata. Van der Hoeven-Van Doornum (1994) also found a positive relationship between parents' aspirations and socioeconomic status. This study had the advantage that prior achievement and IQ were taken into account, so possible differences in these aspects could not explain the relationship. Other studies have demonstrated a relationship between ethnicity and parents' aspirations. Dandy and Nettelbeck (2002) examined participants in Australia, and found that the aspirations of Vietnamese and Chinese parents for their 10-year-old children were higher than the aspirations of Anglo-Celtic Australian parents with comparable socioeconomic status. Strand (2011) also reported higher aspirations for ethnic minority groups in Great Britain: He compared the aspirations of Indian, Pakistani, Bangladeshi, Black Caribbean, Black African, and mixed-heritage parents with those of White British parents. Zhang et al. (2011) indicated that among parents in the USA, aspirations were highest for 12th-grade Asians, followed by African Americans, Hispanics, and finally European Americans. However, in 8th grade, the aspirations of Hispanic parents were somewhat lower, and the aspirations of Black Americans were about the same as the aspirations of European Americans. The results of these studies were based on simple descriptive analyses; possible mediator variables were not taken into account. In addition, though, Zhang et al. (2011) found that the aspirations of parents of Asian, African American, and Hispanic ethnic backgrounds were less influenced by prior achievement than those of parents of European American ethnic background. The last group of parents appeared to be more willing to adjust their aspirations to their child's (lower) actual achievement than were ethnic minority parents. Controlling for socioeconomic status did not change these findings. Furthermore, two studies that examined differences in parents' aspirations for boys and girls revealed mixed results. Zhang et al. (2011) observed higher levels of parents' aspirations for girls than for boys in the 12th grade, whereas there were no gender differences in the 8th grade. Creed et al. (2007), whose study was particularly focused on the 6th grade, did not find any gender differences in parents' aspirations.

Theoretical background

The above literature review shows that parents' aspirations indeed relate to student performance. This finding is in line with what Coleman (1988) wrote in his paper on social capital. Coleman argued that the human and social capital of the parents play a role in how the child performs at school. The human capital of parents can be defined as their level of education; the social capital refers to the relationship between the parents and the child. The parents' social capital consists, among other elements, of the parents' involvement with their child and the expectations and aspirations they hold for their child. Without social capital, parents' human capital cannot affect student performance. The effect of parents' social capital on student performance can be explained using the bio-ecological model. Ecological theory (Bronfenbrenner, 1986, 1994) posits that the (scholastic) development of students depends not only on their individual characteristics, for example, intelligence, but also on their environment. According to this theory, human development is based on the interactions between a person and his/her immediate environment. These interactions only have a significant influence if they are frequent and long term. Interactions with the immediate environment are called proximal processes; these take place in the microsystem of the person. A person's mesosystem refers to the processes taking place among the different elements of the immediate environment (e.g., the family and the school). These elements, which are all connected, also influence the person's development.

When this theory is applied to the context of the student, we see that parents and teachers form an important part of a student's immediate environment. Both student–parent and student–teacher interactions influence students' scholastic development. These influences are reciprocal, which means that the parents can influence the student and the student can influence the parents. Furthermore, interactions between the parents and the teacher (the mesosystem) also affect the student's development. The student, the parents, and the teacher, therefore, play an important role in explaining student performance. An example of this interplay is the effect of the parents' involvement in the education of their child, and its impact on the child's school performance. Educationally involved parents stimulate their child's learning. They communicate with their child about school and learning, and may help him/her with homework and the development of his/her learning skills, like reading and counting. This type of parental involvement supports the child's learning at school. A good parent–teacher relationship promotes the alignment between parental support and school learning (Seginer, 2006).

Ecological theory suggests that explanations for the effects of misaligned parents' aspirations on student performance should be sought in the environment of the student. Based on prior research, we propose three possibilities. First, misaligned parents' aspirations may directly affect the attitude of the parents towards school and learning. High parents' aspirations may lead to a more stimulating and ambitious home environment where great importance is attached to academic performance. Consequently, parents with high aspirations may be more involved in their child's academic performance. This condition is likely to entail extra homework support and school engagement. On the other hand, low parents' aspirations may be related to a less stimulating home environment where academic performance is not considered so important. In such a context, a child will receive less encouragement to develop scholastic skills and knowledge. Meta-analyses of the effects of parental involvement in student achievement have shown that students with parents who are more involved in school and learning achieve better than students with less engaged parents (Fan & Chen, 2001; Jeynes, 2007). Yamamoto and Holloway (2010), who reviewed the literature on the effects of parents' expectations on student performance, observed a mediating role of parent involvement. However, this result did not apply to all ethnic groups.

Second, misaligned parents' aspirations may influence the motivation of the student. Parents' aspirations may affect how students think about their own capabilities. Pajares (2001) reported that students who attach great value to school and learning, and show self-confidence, are optimistic about their own capabilities, which is related to academic motivation and achievement. Therefore, low parents' aspirations may have a negative influence on the student's perceived value of school and as such have a demotivating effect, whereas high parents' aspirations may positively influence the student's evaluation of school and, therefore, serve as an extra motivational stimulant for the student to exert more effort. Earlier, Pintrich and De Groot (1990) showed that the self-efficacy beliefs of students, belief in their own capabilities, affected their cognitive engagement, which in turn was related to student performance. Other research has also shown that high achievement motivation is beneficial to student performance, whereas low achievement motivation leads to lower student performance (Hodis, Meyer, McClure, Weir, & Walkey, 2011; Kuyper, Van der Werf, & Lubbers, 2000). In their literature review, Yamamoto and Holloway (2010) found that students' self-efficacy mediated the effect of parents' expectations on student performance. This result might also apply to student achievement motivation and the effect of misaligned parents' aspirations on student performance.

Third, misaligned parents' aspirations may affect student performance through their relationship with the teacher's expectations of the student. Benner and Mistry (2007) showed that parents' and teachers' expectations regarding whether students would graduate from high school quite often corresponded. Creed et al. (2007) argued that parents' expectations and aspirations are related to each other, which makes it likely that parents' aspirations and teachers' expectations are also connected. Positively misaligned parents' aspirations may relate to a more optimistic view of the teacher with respect to the students' capacities. Research has shown that high teacher expectations have a significant influence on student performance. When a teacher's expectations for a child's performance level are higher than his/her actual achievements, this appears to have a positive effect on the child's academic performance. On the other hand, lower teacher expectations result in lower academic performance (Brophy, 1983; De Boer, Bosker, & Van der Werf, 2010; Jussim & Harber, 2005; Madon, Jussim, & Eccles, 1997; McKnown & Weinstein, 2002; Van der Hoeven-Van Doornum, 1994). Therefore, if misaligned parents' aspirations affect student performance, this influence may be caused by their relationship with biased teacher expectations. Yamamoto and Holloway (2010) proposed a similar explanation for the effect of parents' expectations on student performance. In their literature review, they confirmed the plausibility of this explanation, but also pointed to the lack of research evidence available.

The current study

In explaining differences in student performance, we focused on the role of parents. We were interested in the effects of misaligned parents' aspirations on student academic performance. Few researchers have investigated whether or not parents' aspirations for a child are generally in line with the child's achievements and talent. First, we examined to what extent parents' aspirations were misaligned by establishing how often they deviated from the student's actual talent and achievements. Prior research has shown that parents' aspirations are related to their socioeconomic status and ethnicity. We investigated whether this is also true for misaligned aspirations. We also examined whether misaligned parents' aspirations are related to the parents' and the child's gender. If misaligned parents' aspirations affect student performance, it is important to know which student groups are associated with these misaligned aspirations. Based on this information, negative effects can be prevented and positive ones stimulated.

Second, we analysed how misaligned aspirations of parents affect long-term student academic performance by comparing the performance levels of students whose parents had misaligned aspirations with those of students whose parents' aspirations were realistic. We expected that higher parents' aspirations, thus higher ambitions, would have a positive effect and lower aspirations a negative effect on student performance. However, aspirations which are too high may be counterproductive, as parents may push their child too much.

We also investigated whether the effects of misaligned parents' aspirations on student performance would be different for different groups of students. It is important to know if certain groups of students are more susceptible than other groups to the effects of misaligned parents' aspirations on their performance. Prior research demonstrated that the relationship between parents' expectations and student performance was less strong for ethnic minority students than for European American students (Yamamoto & Holloway, 2010). This finding might also apply to the concept of misaligned parents' aspirations.

Finally, we aimed to determine why misaligned parents' aspirations affect student performance. We examined whether the three explanations suggested for the effects of

misaligned parents' aspirations on student performance were valid. To this end, we examined whether parent involvement, student achievement motivation, and teacher expectation bias were related to misaligned parents' aspirations, and we analysed the influence of each of these on the effect of misaligned parents' aspirations on student performance.

Method

Data and procedure

The participants in this study were 10,433 students at 112 schools in The Netherlands, who were monitored for 5 consecutive years after entry into the first grade of secondary education (US Grade 7). The participants were the same as in a prior study on the effects of teacher expectation bias on student performance (De Boer et al., 2010).

For each student, we had information on both the criterion and the predictor variables. The data collection started at the time of secondary school entry in 1999, when the students were about 12 years old. First, the schools were requested to give some background information about the students. Furthermore, both the students and their parents were asked to fill in a questionnaire. The parent questionnaire included 71 questions about school-related topics (such as parents' aspirations and involvement), about socioeconomic status, family structure, and ethnic background, and about the characteristics of the child. Only one parent filled in the questionnaire, regardless of family structure. The student questionnaire contained 63 questions about perceptions of school, homework, achievement motivation, study skills, and social-psychological topics. The students' achievement levels at the end of primary school were assessed using a test. Their IQs were evaluated in the 2nd year of secondary school. Information about the students' grades and school tracks was collected every year. This information was used to define the students' educational performance. Table 1 shows a demographic sketch of the participants.

The original two-stage sample included 126 secondary schools and 19,391 students. These participants were selected by taking a sample of secondary schools in The Netherlands. All first-grade students of the selected schools were included in the sample. Due to attrition, the final sample was smaller than the original. The parents of the students received a letter in which they were informed about the participation of their child in the study. If they did not agree with this, they could inform us. We discuss the issue of potential attrition bias below.

Table 1. Distribution of the variables in the sample ($N = 10,433$).

Variables	Distribution					Z score	
	Min.	Max.	Mean	SD	%	Min.	Max.
Misaligned parents' aspirations	-4.00	3.50	0.00	0.82		-4.91	4.29
Student performance Year 5	4.00	11.00	8.21	1.16			
Prior achievement	503.00	550.00	536.21	8.51		-3.90	1.62
IQ	64.00	145.00	104.17	12.63		-3.18	3.23
Parental education level	2.00	7.00	4.11	1.07		-1.97	2.69
Gender (girl)					51.25		
Mixed indigenous/ethnic minority					7.22		
Ethnic minority					5.78		
Parent involvement	1.00	4.00	3.23	0.62		-3.59	1.23
Achievement motivation	1.00	4.00	2.86	0.45		-4.11	2.53
Teacher expectation bias	-2.50	3.50	-0.02	0.68		-3.66	5.20

Variables

Of primary interest in this study were the variables “misalignment of parents’ aspirations” and “student academic performance”. Prior achievement and IQ were used to calculate the extent to which the parents’ aspirations deviated from the student’s talent and achievement. Prior achievement and IQ also functioned as covariates in the analyses of student performance. The other student characteristic variables were parental education level, gender, ethnicity, parent involvement, student achievement motivation, and teacher expectation bias. The variables are discussed below.

Student academic performance

The Dutch secondary education system is tracked: There are five tracks, of which the pre-university track (the highest track) is the only one that directly prepares students for university education. The duration of the tracks varies between 4 (the three lowest tracks) and 6 years (the highest track). Upward or downward mobility between the tracks is possible; repeating a year (in the same track and grade) is also possible. After completion of a track, students can continue in the second-last year of a higher track. It is possible to map out the student’s grade and track on a so-called education ladder (Bosker & Van der Velden, 1989). The scores on this ladder range from 1 to 12. Completion of the highest track is valued at 12 points, while starting secondary education in the lowest track is rated at 2 points (1 point is for starting special needs education). Thus, a high score reflects a high and a low score a low performance level. The score on the education ladder increases by 1 point when a student proceeds to the next year or moves one track higher within the same grade. The student’s score on the education ladder is calculated by subtracting the number of years required to reach the top, that is, to obtain direct access to university education, from the maximum score of 12 points. For example, a student’s score in the 6th year (the final grade of the highest track) is 11, in the 5th year 10, in the 5th year of one track lower 9, and so on. A 1-point difference in performance score thus means a difference in performance of 1 year.

Prior achievement

Students’ prior achievement was assessed at the end of primary school based on the Final School Leaving Test, developed by the Dutch National Institute for Educational Measurement (Cito), which is the Dutch equivalent of the Educational Testing Service (ETS) in the United States. The test was designed for a number of reasons: for example, to provide teachers and students with an objective measure of the latter’s achievement levels, to assist students in their choice of the secondary school track, and to help teachers in their recommendations regarding this decision. The test consisted of 200 multiple-choice items, divided over three subtests: Dutch language, arithmetic, and study skills. The test scores ranged from 501 to 550. The reliability of the test (KR20) was 0.95.

IQ

The students’ IQ was assessed using the NIO test (Dutch intelligence test for level of education), consisting of 150 items. This test was designed to be administered in a group format. The assessment took place in the 2nd year of secondary school. Unfortunately, the students’ IQ had not been measured at the end of primary school, but analyses have shown that the participants’ scores on this test are quite stable over time (0.88 correlation

for the scores at the end of primary school and the 3rd year of secondary school). The NIO test was used to measure three factors of intelligence: verbal, arithmetic, and spatial. The test was multiple choice, with a minimum of four and a maximum of six answer alternatives per item. The average IQ score was 100 and the standard deviation 15. Regarding reliability of the test, the authors reported a Cronbach's alpha of 0.95. To give an indication of its validity, Van Dijk and Tellegen (2004) reported a strong relationship between secondary school track and the test score ($\eta = 0.79$).

Missing values for prior achievement and IQ were computed using the "Expectation Maximization" algorithm in SPSS. This was only done if at least one of the scores was known. Of the original sample of 19,391 students, the prior achievement Cito scores for 8,821 students and the IQ scores for 6,545 students were missing. In the final sample of 10,433 students, the scores on prior achievement were calculated for 3,302 students, and those on IQ for 2,315 students. In order to establish the missing values, an extra test was administered, which was a shortened version of the Cito test. It was taken at secondary school entry and consisted of 60 items. This test strongly correlated with prior achievement ($r = 0.83$) and IQ ($r = 0.78$). Moreover, prior achievement and IQ also strongly corresponded with each other ($r = 0.75$). The missing rates were computed to maximize the number of cases with a valid value for the "misalignment of parents' aspirations" variable.

Misalignment between parents' aspirations and students' talent and achievement

The parent questionnaire included an item that requested parents to indicate the level of education they wanted their child at least to attain. Parents' answers were scaled on the same education ladder as the performance variable, but without taking the track year into account. The scale ranged from 2 (lowest secondary school track with extra student support) to 6 (highest secondary school track). Students whose parents ticked "no opinion" were excluded from the analyses; this occurred in 5.8% of the cases. The parent questionnaire was filled in by one parent. For 9,842 students included in the analysis, it was indicated which parent had filled in the questionnaire; mothers formed the large majority (7,360 times by the mother versus 2,482 times by the father).

Next, to qualify the parents' wishes as low or high aspirations, we compared their answers with the students' talent and achievement. When parents wanted their child to attain at least the middle secondary school track, this could be classified as a high aspiration if the child's talent and achievement were suited to the lowest secondary school track. This aspiration was quite low if the child had the capacity to reach the highest track. We used the students' talent as well as achievement to measure the misalignment of parents' aspirations, as both these aspects reflect the cognitive capacities of the student. Through using both indicators, we hoped to get a more reliable measure. For each score on the prior achievement test, Cito (2011) indicated which secondary school track was the most suitable. Van Dijk and Tellegen (2004) indicated this for the IQ scores. These indications were used to express the students' prior achievement level and IQ as a score on the education ladder, in the same way as the parents' education wishes were indicated, so with a maximum score of 6. The talent and achievement of the students were computed as the mean score of their prior achievements and IQ. This resulted in a variable with a mean score of 4.46 ($SD = 1.05$). The misalignment of the parents' aspirations was defined as the difference between the parents' education wishes and the actual talent and achievement of the child. For example, a student's score on the prior achievement test was 535, on the IQ test 103, and the track aspired by the parents' was the second highest track. Cito (2011) indicated that for students with a score of 535 on the prior achievement test the highest

pre-vocational track is likely the most suitable. Van Dijk and Tellegen (2004) also indicated this track for students with an estimated IQ of 103. In our data, this track was coded “4”. The track aspired by the parents was coded as “5”. So, the misalignment of parents’ aspirations was coded as “1” (5 minus 4). A positive score indicated that the parents’ aspirations were higher than warranted by the child’s talent and achievement, a negative score signified that parents’ aspirations were lower than warranted by the child’s talent and achievement, and a zero score indicated realistic aspirations.

Parental education level

In the parent questionnaire, both parents were asked about their educational level. The questions were open, as this was expected to yield more reliable answers than multiple-choice items. We used the highest educational level obtained by one of the parents as a proxy for the parental education level of the student. The values of the variable ranged from 1 (*lowest level, primary school only*) to 7 (*highest level, PhD*).

Gender

Boys were coded as 0 (reference category) and girls as 1.

Ethnicity

Information about the students’ ethnic origin was gathered by asking the parents in which country they were born. We distinguished six groups: “indigenous”, “mixed indigenous/ethnic minority”, “Turkish”, “Moroccan”, “Aruban, Surinamese, & Netherlands Antillean (ASA)”, and “other”. Turkish and Moroccan people came to The Netherlands as immigrant workers from around 1960 on. Aruba, Suriname, and the Netherlands Antilles are or have been overseas territories of The Netherlands. Dutch is still one of the official languages in these areas. The ethnic background of the parents of students with a mixed ethnicity was categorized as “other” in 85% of the cases. For the further analyses, the students’ ethnicity was operationalized as a trichotomous variable containing the categories “indigenous”, “mixed indigenous/ethnic minority”, and “minority”.

Parent involvement

In the parent questionnaire, three items were included about how often the parents talked with their child about school: The first item referred to tests and lessons, the second to school experiences, and the third to what he/she had learnt at school. The answers ranged from 1 (*almost never*) to 4 (*almost every day*). Factor analysis indicated that the three items represented one factor, and they formed a reliable scale, with a Cronbach’s alpha of 0.72. The student’s score on parent involvement was formed by calculating the mean of the three items; one item score was allowed to be missing.

Achievement motivation

The students’ achievement motivation was assessed using nine multiple-choice items from the student questionnaire handed out in the 1st year of secondary school. Two important aspects of achievement motivation were assessed, namely, student effort and the value attributed to achievements. More specifically, the items measured the perseverance, the

study habits, the attitude to school work, and the performance orientation of students. Each item had to be answered on a 4-point scale, ranging from 1 (*does not apply at all*) to 4 (*largely applies*). Factor analysis indicated that the nine items together represented the same dimension, and they produced a reliable scale with a Cronbach's alpha of 0.74. It was not possible to split these items into an "effort" and a "valuing" scale, because these separate measures were less reliable. The student's score on achievement motivation was formed by calculating the mean value of the nine items. One item score was allowed to be missing. The scores ranged from 1 (*low*) to 4 (*high*). As regards its predictive validity, prior research has shown that this scale is significantly related to future student performance (De Boer et al., 2010).

Teacher expectation bias

The teachers' expectations of the students were measured at the end of primary school. After completing primary education, the students were given a recommendation by the primary school teacher regarding which track would be the most suitable for them in the secondary system. Suitability in this context refers to the chances of successful completion of the recommended track. Often, a combination of two successive tracks was recommended. The teacher recommendations could also be indicated on the education ladder. A recommendation to continue secondary education in the lowest track, for instance, was valued at 2 points and a recommendation for the highest track at 6 points. The *bias* of the teacher's expectation was defined as the difference between the teacher's expectation and the student's actual talent and achievement. These variables were computed as the mean of prior achievement and IQ, which is also how misalignment of parents' aspirations was calculated. A positive score on the resulting "teacher expectation bias" variable indicated that the teacher held higher expectations for the student than should be expected on the basis of his/her actual talent and achievement. A negative score signified lower expectations than warranted by the student's talent and achievement. A zero score indicated that the teacher's expectation was without bias.

Table 1 presents the distributional characteristics of the variables. We also added the standardized scores of the predictor variables, since we used them in the multilevel analyses. For ease of interpretation, we did not standardize the criterion variables. More detailed information about the "misalignment of parents' aspirations" variable is given in the results section.

Attrition

Neither the students we lost track of, for example, because they changed schools or left secondary school without a diploma (3,104 students altogether), nor the 5,854 students whose variables lacked one value or more were included in the analysis. However, a comparison of the information collected on the students who were included in the analysis with that on the students who were left out showed that there was attrition bias. The average scores on the achievement test taken at the end of primary school and on the IQ test were higher for the students included in the analysis (2.83 points; $t = 19.0$ and 3.97 points; $t = 19.6$, respectively). The students we lost track of had, on average, lower scores on these variables than those who were excluded from the analysis due to missing values, but this last group still scored lower than the students included in the analysis. There was also attrition bias for the misalignment of parents' aspirations variable. Here, the mean score of the students left out of the analysis was 0.21 higher ($t = 11.8$).

Data analysis

Sampling took place in two stages. First, a sample of a number of secondary schools was selected. All 1st-year students of these schools automatically formed part of the sample population. As a consequence of the two-stage sampling, the students were nested within the schools. This hierarchical structure of the data caused variability at the levels of both the students and the schools. Because multilevel analysis takes account of the variability associated with each level of nesting, it was the appropriate method of analysis in this study. Multilevel analysis enables estimation of regression models in which the residual variance is partitioned into components corresponding to each level. Standard errors in the regression coefficients are estimated by taking the dependency among the observations into account. In the current study, we used the statistical package MLwiN Version 2.0.

In the multilevel regression models tested in this study, all predictor variables pertained to the student level. Except for the misalignment of parents' aspirations variable, the predictors were considered to have the same effect at each school (a fixed effect). The intercept and misalignment of parents' aspirations, however, had a random effect at the school level, meaning that schools could differ in both their average score on the criterion variable and in the effect of misaligned parents' aspirations on this variable (Rasbash, Steele, Browne, & Prosser, 2000; Snijders & Bosker, 1999).

Results

Parents' aspirations and their deviation from student's talent and achievement

The "misalignment of parents' aspirations" variable is expressed as a score on the education ladder. Therefore, a score of 1 point means that the aspiration is one track higher than the student's talent and achievement, or, expressed in time, a difference of 1 point is equal to 1 year of education. To provide an impression of the distribution of students as regards the "misalignment of parents' aspirations" variable, some basic statistics are presented in Table 2. For this purpose, the variable was divided into six categories. Extremely misaligned aspirations were defined as deviating at least one-and-a-half years from the student's actual talent and achievement, moderately misaligned aspirations as deviating 1 school year, and slightly misaligned aspirations as deviating half a school year. As Table 2 shows, each category contains a fairly large number of students. The categories "extremely low" and "extremely high parents' aspirations" are the smallest. Parents' aspirations were at exactly the same level as their talent and achievement for 27.8% of the students. For another 35.4%, the aspirations deviated only slightly. This was the case when the students' talent

Table 2. Distribution of misalignment of parents' aspirations.

Misalignment of parents' aspirations	Scores	%	N
Extremely low	-1.5 or lower	3.8	396
Moderately low	-1.0	16.1	1677
Slightly low	-0.5	17.0	1769
Realistic	0.0	27.8	2897
Slightly high	0.5	18.4	1915
Moderately high	1.0	11.3	1175
Extremely high	1.5 or higher	5.8	604
Total		100.0	10,433

and achievement score was not a round number. For instance, if the student's IQ was scored as "2" and the prior achievement as "3", the averaged talent and achievement score was 2.5. Parents' aspirations were only scored as whole numbers, so inevitably there was a slight difference between the two scores. Furthermore, slightly more students had parents with moderately or extremely low aspirations than with high aspirations (19.9% and 17.1% respectively).

Analysis showed that mothers had slightly lower aspirations than fathers. The average misalignment of the aspirations of the mothers was -0.05 , whereas for the fathers this was 0.12 . The difference in aspirations between the two groups of parents was significant ($t = 8.5$; $p < 0.01$).

Relationship between misaligned parents' aspirations and students' background characteristics

A t test revealed a relationship between misaligned parents' aspirations and gender, with girls having a slightly higher score ($t = 6.33$; $p < .01$). Analysis of variance also showed a relationship between misaligned parents' aspirations and the students' ethnicity, with the highest scores for ethnic minority students, and the lowest scores for indigenous students ($F = 259.08$; $p < .01$). Table 3 shows the correlations between all the variables measured at interval scale. The table indicates that misaligned parents' aspirations are related to parental education level, and also to prior achievement and IQ.

To examine the relationship between misaligned parents' aspirations and students' background characteristics more thoroughly, we performed a multilevel regression analysis. This method enabled us to simultaneously analyse the relationships and correct for effects that were due to relationships with the other predictors. We used the unstandardized values of the "misalignment of parents' aspirations" variable as a criterion. In this way, the coefficients of the predictors directly reflected the number of years of difference in aspirations. The scores of the predictor variables were standardized so that the sizes of the coefficients could be directly compared with each other. This approach enabled us to see which predictor contributed the most to the prediction of the misalignment of parents' aspirations variable.

The relationship with prior achievement and IQ was first examined, followed by the relationship with the students' background characteristics: gender, ethnicity, and parental education level. Table 4 presents the results of these analyses. The model on the left side is the empty model without predictors. Model 1 includes prior achievement and IQ as predictors. This model shows that the misaligned parents' aspirations variable is negatively related to prior achievement and IQ. These relationships are also found in Models 2 and

Table 3. Correlations between the variables.

	Misal. parents' aspirations	Prior achievement	IQ	Parent involvement	Motivation	Teacher exp. bias
Prior achievement	-.49*					
IQ	-0.56*	.81*				
Parent involvement	-0.02	.04*	.05*			
Motivation	.11*	.05*	.01	.11*		
Teacher exp. bias	.63*	-.28*	-.41*	.01	.07*	
Parental education	-.13*	.34*	.30*	.11*	.02	.01

* $p < .01$.

Table 4. Effects of student characteristics on the misalignment of parents' aspirations.

Variable	Model				Parents' aspirations raw β (SE)
	Empty β (SE)	1 β (SE)	2 β (SE)	3 β (SE)	
Intercept	.067 (.031)	-.021 (.031)	-.092 (.027)*	-.044 (.015)*	4.390 (.019)*
Prior achievement		-.184 (.011)*	-.180 (.011)*	-.155 (.009)*	.354 (.009)*
IQ		-.402 (.011)*	-.384 (.010)*	-.192 (.010)*	.288 (.009)*
Parental education level			.052 (.007)*	.018 (.006)*	.032 (.006)*
Girls			.023 (.012)	-.013 (.010)	-.001 (.010)
Mixed indigenous/minority			.130 (.025)*	.101 (.022)*	.104 (.022)*
Turkish			.826 (.051)*	.728 (.044)*	.767 (.044)*
Moroccan			.768 (.055)*	.667 (.048)*	.670 (.047)*
ASA			.585 (.054)*	.533 (.047)*	.536 (.046)*
Other ethnicity			.609 (.035)*	.572 (.030)*	.596 (.030)*
Parent involvement				.011 (.005)	.016 (.005)*
Achievement motivation				.037 (.005)*	.042 (.005)*
Teacher expectation bias				.367 (.006)*	.240 (.006)*
School-level variance	.094 (.014)*	.102 (.015)*	.071 (.010)*	.017 (.003)*	.031 (.005)*
Student-level variance	.585 (.008)*	.379 (.005)*	.355 (.005)*	.271 (.004)*	.260 (.004)*
ICC	.138	.212	.167	.059	.107
R^2 compared to prior model		29.2%	11.4%	32.4%	

Notes: Boys are the reference category for gender and indigenous students for ethnicity. R^2 is percentage explained variance.

* $p < .01$.

3, in which the other predictors are taken into account. We also performed a multilevel regression analysis with the raw parents' aspirations variable as a criterion (i.e., not only the misaligned aspirations). The results of this analysis are reported in the far right column of Table 4. They show that students' prior achievement and IQ are two important factors in explaining differences in actual parents' aspirations, with parents' aspirations being higher for students with higher scores on these variables. In all other models in Table 4, we analysed the relationships with *misaligned* parents' aspirations: that is, the aspirations not based on students' achievement level and IQ. In these models, we found a negative relationship with prior achievement and IQ. We provide an explanation for this phenomenon in the discussion section.

Model 2 reveals a small positive relationship between misaligned parents' aspirations and parental education level. The effect decreases, but remains significant, after parent involvement, student achievement motivation, and teacher expectation bias are taken into account (Model 3). Furthermore, Model 2 shows that misaligned parents' aspirations are related not to gender but to ethnicity. The relationship with ethnicity only slightly decreases after parent involvement, student achievement motivation, and teacher expectation bias are taken into account (Model 3). Compared with parents of indigenous students, parents of

ethnic minority students have aspirations much higher than warranted by these students' talents and achievements. In addition to prior achievement and IQ, here parental education level, gender, and ethnicity together explain 11.4% extra variance in the misalignment of parents' aspirations variable (*Cohen's* $f^2 = 0.13$; a small to medium effect size).

Relationship between misaligned parents' aspirations and parent involvement, student achievement motivation, and teacher expectation bias

Table 3 shows that misaligned parents' aspirations are related to student achievement motivation and teacher expectation bias, but not to parent involvement. We added parent involvement, student achievement motivation, and teacher expectation bias to the multilevel regression model described above to see if they related to misalignment of parents' aspirations after student background characteristics were taken into account. Model 3 of Table 4 shows the results of this analysis. Parent involvement appears not to be significantly related to misaligned parents' aspirations ($p = 0.014$). Student achievement motivation and teacher expectation bias, however, are related to misaligned parents' aspirations. Higher scores on these variables go together with higher parents' aspirations compared with the student's talent and achievement. This finding may indicate that misaligned parents' aspirations exert influence on student achievement motivation and that there is indeed a connection with teacher expectation bias. The standardized regression coefficients show that the relationship between misaligned parents' aspirations and student achievement motivation is quite small and that the association with teacher expectation bias is quite strong. Table 5 shows how often misaligned parents' aspirations and teacher expectation bias overlap. Here, we used the same categories for the misalignment of parents' aspirations variable as in Table 2. The teacher expectation bias variable was categorized in the same way.

Parent involvement, student achievement motivation, and teacher expectation bias together explain 32.4% extra variance in misalignment of parents' aspirations on top of student talent and achievement and student background characteristics (*Cohen's* $f^2 = 0.48$; a large effect size). Student talent and achievement, student background characteristics, and the other three variables together explain 57.6% of the variance in the misalignment of parents' aspirations (*Cohen's* $f^2 = 1.36$).

Misaligned parents' aspirations and student performance

In Figure 1, we graphically present the relationship between misaligned parents' aspirations and student performance in the 5th year, after correction for the covariates prior achievement and IQ. The figure shows that the student's performance increases, the higher the aspirations of the parents are compared with the student's talent and achievement. The difference in performance between students whose parents have extremely low aspirations and those whose parents have extremely high aspirations is about one school year.

We examined the influence of misaligned parents' aspirations on 5th-year student performance more thoroughly through multilevel regression analysis. We used the unstandardized score of the student performance criterion so that the regression coefficients would reflect the number of years of difference. The predictors were standardized, and we assigned a random slope to the misalignment of parents' aspirations variable. As a result, we could see whether the schools differed in terms of the effect of misaligned parents' aspirations on student performance. Table 6 reports the results of this analysis. Model 1 in Table 6 contains only the covariates prior achievement and IQ. This model was used as a reference for Model 2, which contains the covariates and the misaligned parents' aspirations predictor. Model 2

Table 5. Congruence between misaligned parents' aspirations and teacher expectation bias in percentages.

Misalignment of parents' aspirations	Teacher expectation bias							Congruence (%)
	Extr negative	Mod negative	Slight negative	None	Slight positive	Mod positive	Extr positive	
Extremely low	35.6	22.0	20.7	18.4	3.3	—	—	57.6
Moderately low	6.8	30.9	31.8	27.3	2.6	0.7	—	69.5
Slightly low	2.7	11.9	43.9	29.2	10.7	1.5	0.1	85.0
Realistic	1.0	6.5	19.4	50.2	18.4	4.0	0.6	88.0
Slightly high	0.5	1.9	10.1	29.1	44.1	12.1	2.1	85.3
Moderately high	—	0.6	5.5	21.2	32.9	32.8	7.0	72.7
Extremely high	—	0.8	3.8	12.1	28.1	30.5	24.7	55.1
Total	3.3	10.1	21.4	32.4	20.9	9.2	2.8	

Notes: Cells are highlighted dark grey when misaligned parents' aspirations and teacher expectation bias are exactly the same and light grey when they differ in only one category. Percentage of congruence is sum of highlighted cells. Rows count up to 100%.

Figure 1. Misaligned parents' aspirations and mean student performance in Year 5, after correction for prior achievement and IQ.

shows that, in comparison with realistic parents' aspirations, low parents' aspirations have a negative effect on student performance and high parents' aspirations a positive effect. Both the negative and positive effects increase as the aspirations deviate more strongly from the student's actual talent and achievement, as can also be seen in Figure 1. The standardized regression coefficient of 0.23 for misaligned aspirations means that aspirations of parents that deviate 1 standard deviation (which is 0.82 school year; see Table 1) from the student's talent and achievement result in a 0.23 school year difference compared with students whose parents have realistic aspirations. Recomputed to 1 school year of difference between the aspirations and the students' talent and achievement, we obtain a difference of about three months in student performance. Compared with Model 1, which only contains covariates, misaligned parents' aspirations explain 9.6% of the variance in student performance (*Cohen's* $f^2 = 0.11$; a small to medium effect size). The variance component of the random slope of misaligned parents' aspirations suggests that there are small differences among schools in the effect of this variable on student performance.

Models 3 and 4 were run to explore the amount of variance in student performance explained by misaligned parents' aspirations, after student background characteristics were taken into account. Model 3 contains the covariates prior achievement and IQ and the predictors parental education level, gender, and ethnicity (with ethnicity as a trichotomous variable instead of one with more categories, since our main focus was on the other variables). Besides these variables, Model 4 also includes the predictor misaligned parents' aspirations. Here, misaligned parents' aspirations explain 7.2% extra variance in student performance compared with in Model 3 (*Cohen's* $f^2 = 0.08$; a small to medium effect size).

Models 5 and 6 were run to examine the effects of misaligned parents' aspirations on student performance after parent involvement, student achievement motivation, and

Table 6. Effects of misaligned parents' aspirations and other student characteristics on student performance in Year 5.

Variable	Model					
	1 β (SE)	2 β (SE)	3 β (SE)	4 β (SE)	5 β (SE)	6 β (SE)
Intercept	8.188 (.029)*	8.194 (.023)*	8.065 (.026)*	8.088 (.022)*	8.095 (.020)*	8.100 (.019)*
Prior achievement	.493 (.014)*	.543 (.013)*	.462 (.013)*	.506 (.013)*	.475 (.013)*	.492 (.013)*
IQ	.301 (.013)*	.412 (.013)*	.322 (.013)*	.422 (.013)*	.441 (.013)*	.469 (.013)*
Parental education			.141 (.008)*	.128 (.008)*	.120 (.008)*	.116 (.008)*
Girls			.202 (.015)*	.196 (.014)*	.180 (.014)*	.181 (.014)*
Mixed indig/minority			.067 (.031)	.038 (.030)	.046 (.030)	.037 (.030)
Minority Parent involvement			.305 (.031)*	.148 (.032)*	.258 (.030)*	.188 (.031)*
Motivation					.012 (.007)	.010 (.007)
Teacher exp. bias					.040 (.007)*	.035 (.007)*
Misal. parents' asp.		.230 (.013)*		.212 (.012)*		.112 (.013)*
School-level variance	.084 (.012)*		.060 (.009)*		.029 (.005)*	
Intercept var		.048 (.008)		.037 (.006)*		.026 (.004)*
Misal. parent asp var		.006 (.002)*		.006 (.002)*		.005 (.002)*
Student-level variance	.552 (.008)*	.522 (.007)*	.526 (.007)*	.502 (.007)*	.495 (.007)*	.487 (.007)*
ICC	.132	.082	.102	.068	.055	.050
R ²		9.6%		7.2%		1.3%

Notes: R² is percentage explained variance compared with prior model in table. Reference category for gender is boys and for ethnicity indigenous.

* $p < .01$.

teacher expectation bias were taken into account. Model 5 includes all aforementioned variables, except misaligned parents' aspirations. Model 6 is the full model. As Model 6 shows, the effect of misaligned parents' aspirations on student performance is still significant, but has decreased substantially compared to Model 4. After correction for parent involvement, student achievement motivation, and teacher expectation bias, the misaligned parents' aspirations construct explains only 1.3% extra variance in student performance (*Cohen's* $f^2 = 0.01$; a small effect size). Model 6 also indicates small differences among schools in the effects of misaligned parents' aspirations on student performance.

To test if the effect of misaligned parents' aspirations on student performance remained stable over time, we performed several multilevel regression analyses. We first tested student performance by applying a separate model for each consecutive year, using the performance score as a criterion. The tested models contained the same variables as the full model (Model 6) in Table 6. Figure 2 presents the results graphically. We chose to use separate lines for the misalignment of parents' aspirations predictor; one

line for each category of misalignment. The group “realistic aspirations” was the reference category. Figure 2 depicts the mean effects of the different categories of misaligned parents’ aspirations on student performance in each year. This provides a clear picture of the differential effects on student performance related to the extent to which the parents’ aspirations deviate from the student’s talent and achievement. Figure 2 shows that the effects of misaligned parents’ aspirations on student performance are fairly stable over time, except for extremely low and extremely high values. Using a linear growth model, we tested if the effect on the growth in student performance over time was related significantly to the score on the misalignment of parents’ aspirations variable. This appeared to be the case. Misalignment of parents’ aspirations had a significant random slope, with a variance of 0.017 ($SE = 0.003$). Assigning a random slope to the misalignment of parents’ aspirations variable, therefore, resulted in a significantly better model fit ($\chi^2 = 58.9$; $df = 2$; $p < .01$).

Differences in parent involvement, student achievement motivation, and teacher expectation bias as explanation for the effect of misaligned parents’ aspirations on student performance

As described above, the amount of explained variance in student performance related to misaligned parents’ aspirations decreased greatly after parent involvement, student achievement motivation, and teacher expectation bias were taken into account. This finding suggests that one or more of these predictors mediated the effect of misaligned parents’ aspirations on student performance. We therefore performed additional analyses to examine the source responsible for this decrease in effect, and it appeared that it was teacher expectation bias. The effect of misaligned parents’ aspirations on student performance was strongly reduced when teacher expectation bias was taken into account. It is

Figure 2. Mean effect of misaligned parents’ aspirations on student performance over time, after correction for prior achievement, IQ, parental education level, gender, ethnicity, parent involvement, student achievement motivation, and teacher expectation bias.

Table 7. Moderation of the effect of misaligned parents' aspirations on student performance by ...

Moderator variable	Moderator main effect β (SE)	Misalignment of parents' aspirations main effect β (SE)	Interaction effect moderator and misalignment of parents' aspirations β (SE)
Prior achievement	.510 (.013)*	.108 (.011)*	-.045 (.007)*
IQ	.462 (.013)*	.109 (.011)*	-.028 (.007)*
Parental education level	.115 (.008)*	.110 (.011)*	-.021 (.007)*
Girls	.181 (.014)*	.126 (.013)*	-.027 (.014)
Mixed indigenous/minority	.029 (.030)	.102 (.014)*	.087 (.030)*
Minority	.171 (.033)*	.102 (.014)*	.060 (.027)
Parent involvement	.010 (.007)	.112 (.011)*	-.013 (.007)
Motivation	.037 (.007)*	.112 (.011)*	.002 (.007)
Teacher exp. bias	.176 (.010)*	.112 (.011)*	.003 (.006)

Notes: Boys are the reference category for gender and indigenous students for ethnicity.

* $p < .01$.

noteworthy that there was also a reduction of the effect of teacher expectation bias on student performance after misaligned parents' aspirations were taken into account.

Moderation of the effect of misaligned parents' aspirations on student performance

In the final analyses, we examined if certain groups of students were less or more susceptible to the effect of misaligned parents' aspirations on student performance. We ran several multilevel regression models with performance in Year 5 as a criterion. We aimed to see if there were significant interaction effects ($p < .01$) between misaligned parents' aspirations and the other variables. We tested a separate model for each of the covariates prior achievement and IQ and the predictors parental education level, gender, ethnicity, parent involvement, student achievement motivation, and teacher expectation bias. The basis of these models was the same as that of Model 6 in Table 6. Next, we added the interaction effect between misaligned parents' aspirations and the relevant covariate or predictor. Table 7 lists these interaction effects.

The analyses revealed four small but significant interaction effects for prior achievement, IQ, parental education level, and students with a mixed indigenous/ethnic minority background. Students with higher scores on prior achievement, IQ, and parental education level were less susceptible to the effects of misaligned parents' aspirations on student performance than students with lower scores. Furthermore, the misalignment of parents' aspirations had a somewhat larger effect on students with a mixed indigenous/ethnic minority background than on students with an indigenous background only.

Discussion

Parents have a major influence on the development of their child, which may also include the child's learning. In this study, we focused particularly on the phenomenon of misaligned parents' educational aspirations for their child. We examined to what extent misaligned parents' aspirations occurred, which student groups were associated with this construct, and how it affected long-term student academic performance. We also investigated if

certain students were more susceptible than others to the effects of misaligned parents' aspirations on student performance. We analysed data from a large Dutch cohort study using multilevel regression analysis. The cohort of participants in this study was followed for 5 years from the first up to and including the 5th year of secondary education.

We defined misalignment of parents' aspirations as the difference between the parents' educational ambitions for their child and the child's actual talent and achievement. It appeared that parents' aspirations were most often aligned, or deviated only to a minimal extent (63.2%). However, 19.9% of the parents had aspirations that were at least one school level lower than warranted by the student's talent and achievement, and 17.1% had aspirations that were at least one school level higher. A possible explanation for these deviating aspirations is that not all parents are well informed about the school tracks available in the Dutch educational system. This might apply especially to ethnic minority parents. An indication that parents are not always well informed about the school system is that they are often surprised and disappointed when their child gets a recommendation for one of the lower secondary school tracks at the end of primary school. We found, furthermore, that fathers had slightly higher aspirations for their child than mothers.

It is important to note that the question posed to the parents was not an open question. They were asked to indicate the minimum education level they wanted their child to attain. Parents of students performing at the highest level, however, could only say that their aspirations had been in agreement with the talent and achievement of their child or that they had been lower. Higher aspirations were not possible. The reverse applies to parents of students performing at the lowest level. Had we restricted our analysis to students with middle levels of talent and achievement, we would have found that 5.3% had lower, and 17.3% higher aspirations. Therefore, there was some bias due to the type of question posed to the parents. We checked how this bias affected the further analyses of the construct's relationship with student characteristics and long-term student performance, and found that, had we restricted the analysis to students with middle levels of talent and achievement, we would have come to the same conclusions as we did now. There were only slight differences in the sizes of the effects. The effect of misaligned parents' aspirations on long-term student performance would have been slightly higher than we reported in this study. Also, the relationship of misaligned parents' aspirations with prior achievement and IQ would have been less strong, but still significant and in the same direction.

We examined the relationship between misalignment of parents' aspirations and student background characteristics using multilevel regression analysis, and found a small connection with parental education level. The aspirations of parents with a high level of education were slightly higher compared with their children's actual talents and achievements than those of parents with a low education level. Furthermore, we found no differences between boys and girls with respect to the misalignment of parents' aspirations variable, but we did observe large differences related to ethnicity. The aspirations for students with a mixed indigenous/ethnic minority background were somewhat higher than those for students with only indigenous parents, and the aspirations of students with only ethnic minority parents were much higher. These results are in agreement with the findings of prior research on the relationship between parents' aspirations and student background characteristics (Dandy & Nettelbeck, 2002; Strand, 2011; Zhang et al., 2011). The literature on this theme suggests that the aspirations of immigrants are higher because they perceive education as the way to achieve upward mobility. Most immigrants have come to their new country to improve their economic situation, and soon noticed that a good education is a prerequisite to reach this goal. Therefore, they attach great importance to a high level of education for their children (Dandy & Nettelbeck, 2002; Portes & Hao, 2004). Bowden

and Doughney (2010) found that immigrant students who spoke the nation's language (in this study it was English) at home had lower aspirations than immigrant students who had a different home language. Maybe students interpreted their achievement levels in the light of the difficulties they had to overcome to reach them, and positively adjusted their future aspirations accordingly. In addition, we found that the aspirations decreased as the students' talents and achievements increased. This effect was probably the result of "regression to the mean": The aspirations of parents of talented and high-achieving students are less likely to be higher than warranted by these students' actual talents and achievements than are those of parents of children with less talent and lower achievements.

We also examined whether parent involvement, student achievement motivation, and teacher expectation bias were related to misaligned parents' aspirations. Our findings show that parents with high aspirations do not talk more often with their child about school than parents with low aspirations. Yamamoto and Holloway's (2010) review reports two studies in which a positive relationship between parental expectations and parent involvement was found. However, the reviewers also indicated that this relationship was not found for all ethnic groups. In our analyses, we also took ethnicity into account, but found no relationship between parents' misaligned aspirations and parent involvement: at first sight a counterintuitive finding, which might be explained by the fact that most parents talk with their child quite often about school-related topics. This explanation is supported by the relatively high mean score on the variable "parent involvement" in the sample (a score of 3.23 on a scale range of 1 [*low*] to 4 [*high*]). Apparently, parents talk about school with their child not only because their aspirations are high and they want to monitor their child's achievements but also because of an intrinsic interest in what happens at school. Furthermore, we found a small connection between parents' misaligned aspirations and student achievement motivation. Higher parents' aspirations were related to higher student achievement motivation, and lower aspirations to lower motivation. Yamamoto and Holloway (2010) found a similar result for the relationship between the motivational aspect self-efficacy and parents' expectations. Finally, a strong relationship was found between parents' misaligned aspirations and teacher expectation bias. Higher parents' aspirations compared with the student's talent and achievement were related to positive teacher expectation bias, and lower parents' aspirations to negative teacher expectation bias. Prior research has shown similar connections between parents' and teachers' expectations (Benner & Mistry, 2007; Yamamoto & Holloway, 2010).

Next, we examined the relationship between misaligned parents' aspirations and student performance in the 5th year of secondary school, after correction for prior achievement and IQ. As we expected on the basis of prior research, the results of the analyses revealed that student performance was indeed associated with the rate of misalignment of parents' aspirations. As the student performance scores increased, the higher the parents' aspirations were compared with the student's actual talent and achievement. On average, the effect of misaligned parents' aspirations on student performance in secondary school appeared to be quite stable over time, except for extremely low and extremely high aspirations, whose negative and positive effects increased over time. Finally, we found small differences among schools regarding the effect of misaligned parents' aspirations on student performance.

We also tested whether the construct differed in its effects on student performance for different groups of students. Here, we observed four significant but modest interaction effects. Students with higher prior achievement levels, a higher IQ, and higher parental education levels were slightly less susceptible to the effects of misaligned parents' aspirations than students with lower levels of prior achievement, IQ, and parental education. In contrast to Yamamoto and Holloway's (2010) findings on parents' expectations, we found that the

effect of misaligned parents' aspirations on student performance was somewhat stronger for students with a mixed indigenous/ethnic minority background than for students with an indigenous background only. However, the effect was not different for students with only ethnic minority parents. Furthermore, we found no significant interaction effects between misaligned parents' aspirations and the variables gender, parent involvement, achievement motivation, and teacher expectation bias.

Based on ecology theory, we suggested three possible ways in which misaligned parents' aspirations can influence student performance. Our first suggestion was that misaligned parents' aspirations influence student performance because higher parents' aspirations increase parent involvement. Prior research has shown that high parent involvement is beneficial to student performance (Fan & Chen, 2001; Jeynes, 2007). The second suggestion was that misaligned parents' aspirations affect student achievement motivation, which subsequently influences student performance. The final suggestion was that misaligned parents' aspirations may be related to teacher expectation bias. As teacher expectation bias influences student performance, we also expected to find an effect of misaligned parents' aspirations on student performance. The results of this study only supported the third suggestion. High parents' aspirations probably influence teachers in such a way that they try to meet these ambitions. In addition, a teacher with high expectations for a student will put extra effort into raising the child's achievement to the expected level. A teacher who is already satisfied when the student reaches the minimum level is less productive than a more ambitious teacher who aims to maximize the achievements of the student. A more ambitious teacher will require the student to address the course material at a higher level, provide good students with extra learning materials, and offer weak students extra help. In this way, the teacher creates an ambitious learning environment in which the best is expected of the student. The teacher knows that the parents appreciate this type of learning environment and that they will stimulate their child to do well at school. It is possible for a teacher to have positively biased expectations for the one student in a classroom, and negatively biased expectations for another student. These differing expectations can lead to different approaches to students within one classroom. For example, in the case of ability grouping, the biased expectations can result in the assignment of students to higher or lower ability groups.

It is also noteworthy that the effect of misaligned parents' aspirations decreased after teacher expectation bias was taken into account, and that the impact of teacher expectation bias on student performance diminished after misaligned parents' aspirations were taken into account. Therefore, we cannot state that teacher expectation bias mediates the effect of misaligned parents' aspirations on student performance. We can only conclude that because of the strong relationship with teacher expectation bias, the effect of misaligned parents' aspirations on student performance decreases after the first variable is taken into account. Unfortunately, we were not able to examine whether misaligned parents' aspirations influence teacher expectation or the other way round, or if they have an impact on each other. In line with ecology theory, it is most likely that misaligned parents' aspirations and teacher expectation bias mutually influence each other, since parents and teachers are interrelated. This assumption is supported by the fact that parents and teachers meet occasionally to discuss the progress of the student. During these discussions, issues like aspirations and expectations are addressed.

Scientific contribution

We conclude that the current findings have provided new insights into the effects of misaligned parents' aspirations. Since our research was based solely on data gathered in The

Netherlands, it may not be possible to generalize all of our results to other countries; for example, those on the occurrence of misaligned parents' aspirations for different ethnic groups. Generalization may also be restricted by differences in education systems. The Dutch secondary school system is highly tracked, which might have affected the influence of misaligned parents' aspirations on student academic performance. On the other hand, in countries with less stringent streaming, there is also often some level of differentiation within classes or schools in order to provide students with instruction at their own level. It is therefore unlikely that the Dutch situation is unique. We expect that the trends and relationships also apply to other countries.

It should also be kept in mind that our research design was basically correlational in nature, which has the disadvantage that no hard causal inferences can be made. This is because a correlational data structure does not allow one to rule out effects of other constructs, which might partly explain the results but were not included in the data. However, the longitudinal design of the study has – given its temporal precedence – been helpful in providing insight into a number of possible causes.

Another limitation is that there was some attrition bias in the sample. Although it is unclear how the attrition biased the results, we do not expect it to have greatly affected the findings. Our research clearly shows to what extent parents' aspirations can deviate from the child's talent and achievement, and what the effects of misaligned aspirations are on student performance in the long term. Our study also demonstrates the extent to which misaligned parents' aspirations are related to parental education level, gender, and ethnicity, and whether the construct has differential effects on student performance for different groups of students. Finally, the results presented in this article have broadened our understanding of the way in which misaligned parents' aspirations relate to student performance.

Practical implications

Our findings indicate that parents and teachers should be aware of the negative effects of low aspirations and expectations. Schools can play a role in informing teachers and parents about this issue. In addition, teachers should be able to recognize when the educational aspirations of parents for their child are too low, and discuss this with the parents in order to try to raise their ambitions. Furthermore, parents and teachers should be stimulated to increase their aspirations, because an ambitious educational environment is undoubtedly beneficial to students. Our findings show that even extremely high aspirations are advantageous for students. In general, in The Netherlands, parents with extremely high aspirations are perceived as too ambitious. They are believed to push their child too much to achieve well, which is considered to have a negative impact on the child's achievements. The results of this study, however, show that this is not the case. Apparently, parents with extremely high aspirations stimulate their child in a positive way to perform well at school.

Future research

In the current study, we were unable to disentangle the relationship between misaligned parents' aspirations and biased teacher expectations. But we did find a strong relationship between the two concepts, and concluded that this relationship plays an important role in explaining the effect of misaligned parents' aspirations on student performance. This relationship should be examined more thoroughly in future research. A longitudinal

research design in which misaligned parents' aspirations and teacher expectation bias are measured over the course of several successive years could reveal to what extent the one affects the other. Use of multilevel structural equation modelling would enable the relationships and possible reciprocal influences to be examined closely.

Another recommendation for future research is to also include an indicator of parents' expectations bias compared with the students' talent and achievement in the analysis, in addition to the misaligned parents' aspirations variable. We had no information about the expectations of parents, unfortunately. Analysis of the joint effects of these two aspects on student performance may teach us more about the relative importance of each. It may also tell us something about the impact on student performance when there is a discrepancy between the expectations and the aspirations of parents.

Finally, the results of this study give a first indication of the differences in aspirations between fathers and mothers. Unfortunately, however, we only knew the aspirations of one of the parents. Further research is required to find out if gender is related to the educational aspirations of parents for their children. In an additional analysis, however, we checked if ethnicity, student achievement, and parental education level were related to whether the father or the mother filled in the questionnaire. It appeared that the parent questionnaire was more often filled in by the father for ethnic minority students than for other students, but the difference in aspirations was still present when we took ethnicity into account. However, differences in student achievement level, IQ, and parental education level might explain the difference in misaligned aspirations between fathers and mothers, as students whose mother filled in the questionnaire had slightly higher levels of achievement and IQ, and slightly lower scores on parental education level than students whose father filled in the questionnaire.

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References

- Benner, A. D., & Mistry, R. S. (2007). Congruence of mother and teacher educational expectations and low-income youth's academic competence. *Journal of Educational Psychology, 99*, 140–153. doi:10.1037/0022-0663.99.1.140
- Bosker, R. J., & Van der Velden, R. K. W. (1989). The effects of schools on the educational career of disadvantaged pupils. In B. P. M. Creemers, T. Peters, & D. Reynolds (Eds.), *School effectiveness and school improvement* (pp. 141–155). Lisse, The Netherlands: Swets & Zeitlinger.
- Bowden, M. P., & Doughney, J. (2010). Socio-economic status, cultural diversity and the aspirations of secondary students in the Western suburbs of Melbourne, Australia. *Higher Education, 59*, 115–129. doi:10.1007/s10734-009-9238-5
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*, 723–742. doi:10.1037/0012-1649.22.6.723

- Bronfenbrenner, U. (1994). Ecological models of human development. In T. Husén & T. N. Postlethwaite (Eds.), *International encyclopedia of education* (2nd ed., Vol. 3, pp. 1643–1647). Oxford, UK: Pergamon.
- Brophy, J. E. (1983). Research on the self-fulfilling prophecy and teacher expectations. *Journal of Educational Psychology*, 75, 631–661. doi:10.1037/0022-0663.75.5.631
- Cito. (2011). *Interpretatie van het leerlingrapport* [Interpretation of the student report]. Arnhem, The Netherlands: Author.
- Coleman, J. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94 (Suppl.), S95–S120. doi:10.1086/228943
- Creed, P. A., Conlon, E. G., & Zimmer-Gembeck, M. J. (2007). Career barriers and reading ability as correlates of career aspirations and expectations of parents and their children. *Journal of Vocational Behavior*, 70, 242–258. doi:10.1016/j.jvb.2006.11.001
- Dandy, J., & Nettelbeck, T. (2002). Research note: A cross-cultural study of parents' academic standards and educational aspirations for their children. *Educational Psychology*, 22, 621–627. doi:10.1080/0144341022000023662
- De Boer, H., Bosker, R. J., & Van der Werf, M. P. C. (2010). Sustainability of teacher expectation bias effects on long-term student performance. *Journal of Educational Psychology*, 102, 168–179. doi:10.1037/a0017289
- Fan, X., & Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review*, 13, 1–22. doi:10.1023/A:1009048817385
- Goldenberg, C., Gallimore, R., Reese, L., & Garnier, H. (2001). Cause or effect? A longitudinal study of immigrant Latino parents' aspirations and expectations, and their children's school performance. *American Educational Research Journal*, 38, 547–582. doi:10.3102/00028312038003547
- Hodis, F. A., Meyer, L. H., McClure, J., Weir, K. F., & Walkey, F. H. (2011). A longitudinal investigation of motivation and secondary school achievement using growth mixture modeling. *Journal of Educational Psychology*, 103, 312–323. doi:10.1037/a0022547
- Jeynes, W. H. (2007). The relationship between parental involvement and urban secondary school student academic achievement. A meta-analysis. *Urban Education*, 42, 82–110. doi:10.1177/0042085906293818
- Jussim, L., & Harber, K. D. (2005). Teacher expectations and self-fulfilling prophecies: Knowns and unknowns, resolved and unresolved controversies. *Personality and Social Psychology Review*, 9, 131–155. doi:10.1207/s15327957pspr0902_3
- Kuyper, H., Van der Werf, M. P. C., & Lubbers, M. J. (2000). Motivation, metacognition and self-regulation as predictors of long-term educational performance. *Educational Research and Evaluation*, 3, 181–205. doi:10.1076/1380-3611(200009)6:3;1-A;FT181
- Madon, S. J., Jussim, L., & Eccles, J. (1997). In search of the powerful self-fulfilling prophecy. *Journal of Personality and Social Psychology*, 72, 791–809. doi:10.1037/0022-3514.72.4.791
- McKnown, C., & Weinstein, R. S. (2002). Modeling the role of child ethnicity and gender in children's differential response to teacher expectations. *Journal of Applied Social Psychology*, 32, 159–184. doi:10.1111/j.1559-1816.2002.tb01425.x
- Pajares, F. (2001). Toward a positive psychology of academic motivation. *The Journal of Educational Research*, 95, 27–35. doi:10.1080/00220670109598780
- Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82, 33–40. doi:10.1037/0022-0663.82.1.33
- Portes, A., & Hao, L. (2004). The schooling of children of immigrants: Contextual effects on the educational attainment of the second generation. *PNAS, Proceedings of the National Academy of Sciences*, 101, 11920–11927. doi:10.1073/pnas.0403418101
- Rasbash, J., Steele, F., Browne, W., & Prosser, B. (2000). *A user's guide to MlwiN. Version 2.0*. London, UK: Institute of Education.
- Rodman, H., & Voydanoff, P. (1978). Social class and parents' range of aspirations for their children. *Social Problems*, 25, 333–344. doi:10.2307/800069
- Schoon, I., Parsons, S., & Sacker, A. (2004). Socioeconomic adversity, educational resilience, and subsequent levels of adult adaptation. *Journal of Adolescent Research*, 19, 383–404. doi:10.1177/0743558403258856
- Seginer, R. (2006). Parents' educational involvement: A developmental ecology perspective. *Parenting: Science and Practice*, 6, 1–48. doi:10.1207/s15327922par0601_1

- Snijders, T., & Bosker, R. J. (1999). *Multilevel analysis. An introduction to basic and advanced multi-level modeling*. London, UK: Sage.
- Strand, S. (2011). The limits of social class in explaining ethnic gaps in educational performance. *British Educational Research Journal*, 37, 197–229. doi:10.1080/01411920903540664
- Van der Hoeven-van Doornum, A. A. (1994). Effecten van streefniveaus in het basisonderwijs op schoolloopbanen in het voortgezet onderwijs [Effects of aspiration levels in primary education on secondary school performance]. *Tijdschrift voor Onderwijsresearch*, 19, 204–213.
- Van Dijk, H., & Tellegen, P. J. (2004). *Nederlandse intelligentietest voor onderwijsniveau* [Dutch intelligence test for education level]. Amsterdam, The Netherlands: Boom test uitgevers.
- Yamamoto, Y., & Holloway, S. D. (2010). Parental expectations and children's academic performance in sociocultural context. *Educational Psychology Review*, 22, 189–214. doi:10.1007/s10648-010-9121-z
- Zhang, Y., Haddad, E., Torres, B., & Chen, C. (2011). The reciprocal relationships among parents' expectations, adolescents' expectations, and adolescents' achievement: A two-wave longitudinal analysis of the NELS data. *Journal of Youth and Adolescence*, 40, 479–489. doi:10.1007/s10964-010-9568-8