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School segregation and math achievement: a mixed-method study on the role of self-fulfilling prophecies

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Published in:
Teachers College Record

School Segregation and Math Achievement: A Mixed-Method Study on the Role of Self-Fulfilling Prophecies

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Background: *In educational research on children's academic performance, few topics have received more attention than the consequences of school segregation and the impact of self-fulfilling prophecies. However, virtually no research has investigated whether self-fulfilling prophecies account for the impact of school composition on academic achievement.*

Purpose & Research Objectives: *This study aims to integrate research on the effects of school segregation with that on self-fulfilling prophecies by examining the mediating role of teacher expectancies regarding the impact of school composition on pupils' math achievement. First, we investigate whether teachers' teachability expectations are related to the socioeconomic and ethnic composition of the school. Second, we investigate whether and how the effects of school composition can be explained by self-fulfilling prophecies. Because it is theorized that teacher expectancies might have an impact on pupils' academic achievement through pupils' perceptions of control over their achievement, we investigate the role of pupils' sense of academic futility.*

Sample & Research Design: *Quantitative data from a survey of 2,845 pupils and 706 teachers in 68 Flemish (Belgian) primary schools and qualitative data obtained through in-depth interviews with 26 teachers in five schools are analyzed. A complementary mixed-*

method design is used: Findings from the quantitative data are strengthened and illustrated with qualitative data.

Results: *The multilevel analysis shows that teachers' teachability expectations are lower in schools with a high share of nonnative and working-class pupils and that these teachability expectations have an indirect impact on pupils' achievement through pupils' feelings of academic futility. The qualitative analysis reveals that the low teacher expectations in these schools are largely triggered by alleged linguistic deficiencies and problematic language use of the pupils and that school staff persistently communicate their preference for Dutch monolingualism to pupils.*

Recommendations: *The results of this study indicate that socioeconomic desegregation may not be needed if it is possible to reform schools with a larger share of working-class pupils. Schools that produce more favorable teachability expectations are recommended. In particular, teachers' attitudes and beliefs regarding pupils' linguistic backgrounds might be the focus of educational reforms.*

In educational research on children's academic performance, few topics have received more attention than the consequences of school segregation and the impact of self-fulfilling prophecies. In the aftermath of the historic decision of the United States Supreme Court that ended de jure school segregation (*Brown v. Board Of Education*, 1954), the impact of school ethnic and socioeconomic composition on academic achievement has been investigated in hundreds of studies (for meta-reviews, see Driessen, 2007; Van Ewijk & Sleegers, 2010). On the other hand, after the Second World War, a research tradition on teacher expectancy effects started from the core idea that teachers' expectations of pupils' academic achievement can markedly affect pupils' actual level of academic performance (Becker, 1952; Brophy, 1983; Rosenthal & Jacobson, 1968), that is, these expectations can be a self-fulfilling prophecy (Merton, 1968).

Although both research traditions (on the impact of school segregation and on self-fulfilling prophecies) apparently grew up independently of each other, they were originally considered interrelated, as in the early research conducted by Kenneth Clark (1955), who had a major impact on the U.S. Supreme Court decision. Clark was convinced that school segregation stigmatized Black children and that pupils in Black schools might be the victims of low teacher expectations, causing educational inequality and underachievement in segregated schools (see Cooper, 1979; Wineburg, 1987). In other words, Clark suggested that the impact of school ethnic composition was mediated by a self-fulfilling mechanism. However, from then onward, until the contemporary era of multilevel studies, virtually no research has investigated whether teacher expectations and self-fulfilling prophecies account for the impact of school composition on academic achievement (for an exception that implicitly

integrated these two research approaches, see Rumberger & Palardy, 2005). Consequently, we know little about the role of teacher and pupil expectancies with respect to the impact of socioeconomic and ethnic school composition on pupils' academic achievement.

We identified three main reasons that these two research traditions have not yet been integrated. First, most studies on the impact of school composition focused on its effects on pupils and, more specifically, on their academic achievement. However, teachers and their cognition might be equally affected by compositional school characteristics (Lee & Loeb, 2000; Van Houtte, 2011), and only recently have researchers started to investigate these potential effects (e.g., McKown & Weinstein, 2008). Second, research on the effects on academic achievement has tended to focus more on the question *what* the effects of school composition are than to question *why* they might occur. Consequently, the factors that might account for the impact of school composition, including the mediating role of teacher and pupil expectations, have been neglected. Third, most studies on teacher expectation effects have investigated *individual* teachers' expectations of individual pupils. However, from a theoretical point of view, school composition might be more strongly related to teachers' expectations at the organizational level (i.e., school level), and an increasing body of empirical research emphasizes the importance of these *collective* teacher attitudes and beliefs (e.g., Halvorsen, Lee, & Andrade, 2009).

The main purpose of this mixed-method study is to overcome this research lacuna and to investigate whether and how self-fulfilling prophecies account for the impact of school composition on pupils' math achievement. More specifically, using quantitative data, we will investigate whether teachers' individual and collective teachability expectations are shaped by the ethnic and socioeconomic makeup of schools and whether these collective expectations mediate the impact of school composition on math achievement. Although quantitative data can provide us with information on statistical effects and their sizes, they are less useful in understanding *how* these effects occur. Therefore, qualitative evidence will be used to gain insight into the processes through which school composition affects teachers' cognition and the processes through which teachers' beliefs are communicated to the pupils (see Riehl, 2001).

STUDY SETTING

This study was conducted in Flanders, the Dutch-speaking region of Belgium. After World War II, Flanders rapidly developed into a multicultural society comprising immigrants from Southern Europe, Turkey,

and North Africa. Immigration was restricted by the government in 1973, however, the influx of immigrants continued via family reunification and matrimonial migration. To date, the educational achievements of second- and third-generation immigrants remain far behind those of their native Belgian peers. In fact, the socioeconomic inequality and the achievement gap between immigrants and natives in Flanders are one of the highest among most Western countries (Organisation for Economic Co-Operation and Development, 2006). Educational policy makers argue that this inequality is mainly caused by the linguistic deficiencies of the immigrants even though there is little scientific evidence for this assumption (Blommaert & Van Avermaet, 2008). For instance, the former Flemish minister of education Frank Vandenbroucke stated that his administration has three policy priorities for creating equal opportunities in education—"language, language and language"—and the current Flemish minister of education, Pascal Smet, claimed that linguistic deficiencies are the main, if not the only, cause of underachievement of students (see Agirdag, 2010).

Belgium is an exceptionally interesting case to investigate the impact of school segregation because previous studies have noted that socioeconomic and ethnic school segregation is very high compared with other Western countries (Jacobs, Rea, & Teney, 2009). This exceptionally high level of school segregation is related to the specific educational policy of free parental choice. The Flemish educational system is characterized by the principle of freedom of education, which means that the assignment of students to schools is not regulated (e.g., by place of residence) within the public education sector. This freedom of school choice allows parents to choose or avoid schools with a certain composition. Because middle-class parents have more resources, they tend to avoid schools with a high share of working-class and immigrant pupils even if these schools are situated in their immediate neighborhood. As a result, ethnic and socioeconomic school segregation is very high in Belgium (Agirdag & Van Houtte, 2011).

In Flanders, schools with a high share of ethnic minority and working-class pupils are commonly named "concentration schools," which is a pejorative term. In the public discourse, concentration school is almost a synonym for a school with low instruction quality and weak academic performance (Agirdag & Van Houtte, 2011). However, in Flanders, there is very little scientific evidence about the impact of ethnic and/or socioeconomic school composition on academic achievement (for a preliminary analysis of the PISA 2006 data for secondary schools, see Jacobs et al., 2009), and there are even fewer empirical explanations of why school composition affects academic performance. Hence, it is vital to address

these issues to achieve a better understanding of the potential harms of socioeconomic and/or ethnic school segregation. Therefore, four research centers from three Flemish universities started the Segregation in Primary Education in Flanders (SIPEF) project to investigate the extent, the antecedents, and the consequences of school segregation. For obvious reasons, not all different aspects of the larger SIPEF project can be discussed here; rather, we focus on the results regarding the consequences of school ethnic and social composition on pupils' math achievement and the mediating role of teacher expectancies.

SCHOOL COMPOSITION EFFECTS

Ever since James Coleman and his team (1966) published their classic study, the impact of ethnic and socioeconomic school composition on pupils' academic achievement has been analyzed in hundreds of studies (for meta-reviews, see Driessen, 2007; Van Ewijk & Sleegers, 2010). Most have been conducted in the United States (e.g., Bankston & Caldas, 1996, 1998; Orfield, 1983; Rumberger & Palardy, 2005; Ryabov & Van Hook, 2007; Wells, 1995). However, the issue is increasingly investigated by European sociologists and educational researchers (for the United Kingdom: Strand, 1997; for France: Boado, 2007; Felouzis, 2003; for the Netherlands: Driessen, 2002; for Belgium: Agirdag, Hermans, & Van Houtte, 2011; Agirdag, Van Houtte, & Van Avermaet, 2012; Dumay & Dupriez, 2008; for Norway: Fekjaer & Birkelund, 2007; for an international comparison: Dronkers, 2010). With a few exceptions, these studies have demonstrated that school socioeconomic composition is related to academic achievement, that is, pupils who attend schools with a higher share of children from a higher socioeconomic background were found to perform better academically. There is less consensus as to the impact of school ethnic composition; whereas some authors have suggested that a higher concentration of ethnic minority and immigrant (nonnative) pupils is related to lower academic performance (e.g., Driessen, 2002; Dumay & Dupriez, 2008), others have not found a significant relationship, particularly when individual socioeconomic status (SES), ethnic background, and previous academic achievement are taken into account (e.g., Fekjaer & Birkelund, 2007; Van der Slik, Driessen, & De Bot, 2006).

Existing research on the impact of compositional school characteristics is strongly focused on effects on pupils. However, it is not too far-fetched to hypothesize that the socioeconomic or the ethnic make-up of schools may also have an impact on teachers and their cognition. Although teachers have general conceptions about teaching, they are inclined to adjust these conceptions to the contextual factors of the school (Finn,

1972). In particular, the compositional features of the school may play a decisive role, given that teachers' evaluations are liable to existing social stereotypes regarding schools with certain student compositions (see Van Houtte, 2011).

Starting from the influential work of Rist (1970), it is repeatedly found that a pupil's *individual* social-class and ethnic background have a small but important influence on teacher expectations, that is, more favorable teacher expectations are found for ethnic majority and higher SES pupils, even after controlling for actual levels of academic achievement (Dusek & Joseph, 1985; Harvey & Slatin, 1975; Jussim, Eccles, & Madon, 1996; Van den Bergh, Denessen, Hornstra, Voeten, & Holland, 2010). However, only recently have studies started to examine the effects of socioeconomic or ethnic school *composition* on teachers' cognition. Indicative of this type of research is the growing number of works from Valerie Lee and her colleagues (Halvorsen et al., 2009; Lee, Dedrick, & Smith, 1991; Lee & Loeb, 2000) and the works of Mieke Van Houtte and her team (Van Houtte, 2003, 2004, 2011; Van Maele & Van Houtte, 2009, 2011). Lee and colleagues found that teachers' responsibility (i.e., their willingness to hold themselves accountable for the learning of their students) is lower in schools that enroll a higher share of low-SES and ethnic minority students, both at the individual teacher level and the collective school level. In the works of Van Houtte (2004, 2011), collective (school level) teacher beliefs and expectations are conceptualized as a part of *staff culture*, where culture is defined as "a set of cognitions shared by members of a social unit" (Van Houtte 2011, p. 85). In these studies, it is shown that in schools with a higher share of low-SES and ethnic minority students, as well as in vocational schools, teacher culture is less academically oriented, and teachers exhibit lower levels of trust in their students.

This study's first research objective is to examine whether and how the composition of the student body has an impact on teachers' cognition. More specifically, using quantitative data, we will examine whether teachers' teachability expectations are related to the socioeconomic and ethnic composition of the school. Teachability expectations are defined as teachers' schoolwide beliefs about the capacities and willingness of their pupils to learn, that is, their expectation regarding how "teachable" their pupils are (Kornblau, 1982). It should be noted that the concept of teachability is distinct from the more established notion of *teacher efficacy*; the latter refers to teachers' beliefs about their own success in achieving their goals, whereas teachability refers to teachers' expectations about their pupils. We will investigate teachability expectations at both the individual teacher level and the collective school level. Analogous to Van

Houtte (2004, 2011), these collective teachability expectations are conceptualized as *teachability culture*. From what has been stated earlier, we expect that the teachability expectations of individual teachers and the staff's teachability culture will be lower in schools that enroll a higher share of low-SES and ethnic minority pupils. Additionally, drawing on qualitative data obtained through interviews with teachers and principals, we will explore the factors through which school compositional features eventually shape these teachability expectations.

TEACHER EXPECTANCY EFFECTS

Even if teachability expectations are determined by the socioeconomic and ethnic composition of schools, they must be associated with pupils' level of achievement to account for the impact of school composition on academic achievement. Research on the impact of teacher expectancies dates back at least to the work of Howard Becker (1952), who argued that a problematic teacher–student relationship emerges when working-class students do not meet the standards of the "ideal pupil" that teachers hold. However, the issue of teacher expectations became widely known after the pioneering work of Rosenthal and Jacobson (1968). In their "Pygmalion experiment," teachers were told that some of their pupils were "bloomers" and likely to make large progress over the year of the experiment. Although these bloomers were randomly selected, 8 months later, they actually made greater progress than other pupils in their school. The Pygmalion study had a large impact on public and scientific thinking. Only 10 years later, Rosenthal and Rubin (1978) were able to conduct a meta-analysis that examined 345 studies on expectancy effects. In the popular press, writers had begun to argue that teacher expectancies are major reasons for racial, social class, and gender inequalities (for a review, see Wineburg, 1987). However, starting in the early 1980s, influential works have shown that these claims were oversimplified and exaggerated (Brophy, 1983; Cooper, 1979; Jussim, 1989; Jussim & Eccles, 1992). Although not disproving the idea of the self-fulfilling prophecy, these studies have shown that the size of teacher expectation effects are rather small and that teachers' expectations were more accurate—that is, consistent with pupils' previous achievements—than biased. Therefore, when examining teacher expectation effects, we should not expect very large effect sizes, and we should control for pupils' previous academic performance.

Jussim (1986) provided an integrative theoretical framework of the underlying causal mechanism of teacher expectations and self-fulfilling prophecies. He distinguished three sequential stages. The first step is that

a teacher develops expectations about a pupil's achievement that might be based on information gathered from prior interactions with the pupil, such as previous achievements, ethnicity, social class, or gender. The second step is that a teacher behaves differently according to his or her expectations. This is the most detailed studied part of the self-fulfilling process. For instance, Rosenthal (1973) distinguished four mechanisms by which teachers might hinder students' educational progress: the social-emotional climate they create toward high-expectation pupils, the amount of feedback pupils receive, the amount and the quality of the subject material offered, and the chances provided to ask or to answer questions. The third and the final step is that pupils react consistently with teacher expectations. Regarding this final stage of the self-fulfilling process, Jussim (1986) added a crucial point: Different teacher expectations and treatment may be *indirectly* related to pupils' academic achievement. More specifically, teachers may have an impact through pupils' beliefs. Jussim (1986) thus stated, "One of the most important ways differential treatment may influence students is by affecting their perceptions of control over academic outcomes" (p. 439). The perception of having control over academic success is a strong determinant of academic achievement; many studies have shown that when students do not believe that their effort will lead to success or believe that they are incapable, they are likely to perform poorly (for a review, see Findley & Cooper, 1983). Therefore, it is theorized that pupils who are confronted with low expectations from their teacher will be inclined to believe that they have no control over their academic success, which will ultimately lead to lower levels of performance.

In this study, we will investigate whether teachability expectations have an indirect effect on academic achievement via pupils' feelings of having no control over academic achievement. At the pupil level, these feelings of lack of control are assessed as *sense of academic futility*. This concept of sense of futility was launched by Brookover and colleagues as an aspect of school climate (Brookover et al., 1978). The most important items of this factor encompass a similar dimension to Coleman's "sense of control" variable (Coleman et al., 1966) but explicitly address the school. As such, this measure reflects the pupils' feelings about the possibility of functioning adequately in the school system. A high sense of futility indicates a feeling of having no control over success or failure in the school system. Following the previous conceptualization of culture as a set of cognitions shared by members of a social unit, we also investigate the impact of pupils' shared feelings of lack of control over academic success, that is, the impact of their *futility culture* (Van Houtte & Stevens, 2010).

Jussim (1986) defined a self-fulfilling prophecy as a "situation in which

a teacher's expectations about a student's future achievement evoke from the student performance levels consistent with the teacher's expectation" (p. 429). It is clear that this definition, as well as most previous studies on teacher expectation effects, is strongly focused on the individual relationship between a teacher and a student. However, teachers have expectations not only about individual pupils but also about the group of students in their school (Van Houtte, 2011). According to Brophy (1983), teachers' differential treatment of groups of pupils is as widespread as the differential treatment of individual pupils and is an equally strong mediator of the effects of expectancy on achievement. Moreover, expectations with respect to a whole group are communicated more directly than expectations of individual pupils (Cooper, 1985). Therefore, in this study, our measure of teachability focuses on expectancies regarding the group of pupils in the school rather than on individual pupils.

We are only aware of two studies that have investigated the mediating role of teacher cognitions at school level to explain the impact of school composition on pupils' academic performance. Rumberger and Palardy (2005) have shown that collective teacher expectations (among other process variables) explain the impact of school SES composition on academic performance. Similarly, Van Houtte (2003) has found that academic staff culture accounts for the impact of school SES composition on individual pupils' propensity to fail.

The second research objective of this study is thus to investigate whether and how the effects of school composition can be explained by self-fulfilling prophecies. Specifically, quantitative data will be used to examine whether the impact of socioeconomic and ethnic school composition on pupils' academic achievement is mediated by teachers' teachability culture, pupils' sense of futility, and futility culture. In addition, drawing on qualitative evidence, we will explore how teachability expectations are expressed by school staff and communicated to pupils.

METHODOLOGY

SAMPLE

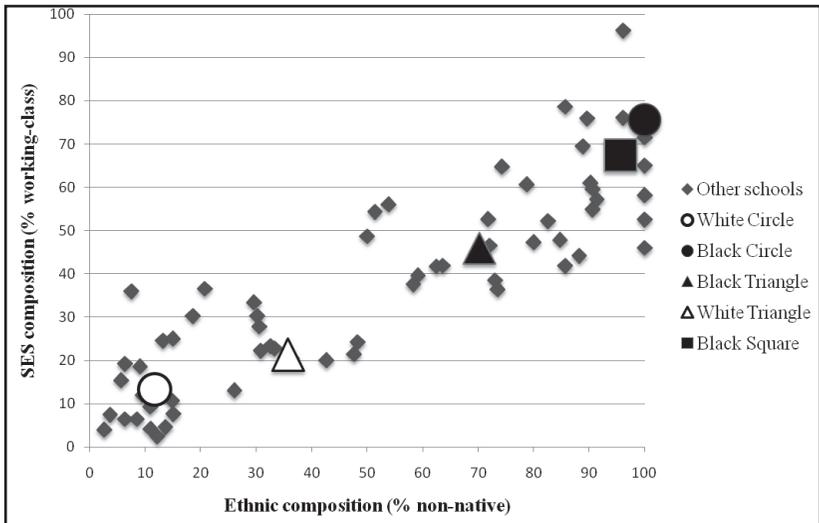We use qualitative and quantitative data gathered as part of the Segregation in Primary Education in Flanders project. Quantitative data were collected during the academic year 2008–2009 from 2,845 pupils and 706 teachers in a sample of 68 primary schools in Flanders. Multistage sampling was conducted. In the first instance, to encompass the entire range of ethnic composition, we selected three cities in

Flanders that had relatively ethnically diverse populations. Second, using data gathered from the Flemish Educational Department, we chose 116 primary schools within these selected cities and asked them to participate; 54% of them agreed to. Because the nonresponse rate was not related to the ethnic composition of schools, the schools in the data set represent the entire range of ethnic composition, from those with almost no nonnative pupils to some composed entirely of nonnatives (see Figure 1). In all schools that agreed to participate, our research team surveyed all the fifth-grade pupils present during our visit. Additionally, all teachers in these schools were asked to fill in a questionnaire. If there were fewer than 30 fifth-grade pupils present, we surveyed all the sixth-grade pupils as well. Given a time limitation, we could not test all curriculum subjects; we focused on math achievement because a large proportion of the respondents were not native speakers of Dutch, and math tests are less linguistically biased than subjects such as reading (Abedi, Hofstetter, & Lord, 2004). To ensure that the questions were curriculum based, the school principals were asked to approve the test. Two schools were removed from the analysis because these schools could not confirm that the test was curriculum based. Therefore, all quantitative analyses represent the remaining 66 schools, including 2,782 pupils and 692 teachers.

The qualitative data were collected during the academic year 2009–2010 from five schools selected from the 66 schools just described. These five schools were intentionally selected as representative of the entire range of ethnic and socioeconomic composition to assess potential differences across various school compositions (see Figure 1). To reflect their ethnic composition, we use the pseudonyms White Circle, Black Circle, Black Triangle, White Triangle, and Black Square to refer to these schools (see Figure 1). In all five schools, the first author conducted in-depth interviews with the school principals, in addition to 4 or 5 teachers; a total of 26 respondents were interviewed. The interviews took place in the school. To ensure anonymity, we use pseudonyms for our respondents (see Appendix B). All the teachers were native Belgians except one (Nadia). The age range of the teachers was 26–58, with a median age of 41. During the interviews, teachers were asked to reflect on themselves, their profession as teachers, their schools in general, colleagues, pupils, parents, the school composition, the differences between schools, and issues of multicultural education. See Appendix A for a complete list of questions used as a guideline during the interviews.

Figure 1. Ethnic and socioeconomic school composition

Note. Qualitatively examined schools are marked.

RESEARCH DESIGN

In this study, we used a mixed-method approach involving both qualitative and quantitative data and methods. A *complementarity design* is used

> . . . In which results from one dominant method type are enhanced or clarified by results from another method type. Using interpretivist interviews that aim for depth and contextual relevance to supplement post-positivist surveys conducted for breadth and representativeness might be considered a classic complementarity design. (Caracelli & Greene, 1997, p. 23)

The quantitative data consisted of a clustered sample of pupils and teachers that was nested within the schools and involved data at different levels (individual and school level). Multilevel modeling was therefore most appropriate (SAS Proc Mixed; Singer, 1998). Before we explain how the multilevel models were constructed, three points should be noted. First, there was a very high correlation between SES and ethnic school composition (i.e., between the proportion of working-class pupils and nonnative pupils at school level; Pearson $r = 0.885$; see Table 2 and Figure 1). This meant that including both variables in the same model could

cause severe multicollinearity problems. Therefore, following Dumay and Dupriez (2008), we decided to include both compositional variables in different sets of models. Second, in scale variables, responses were imputed for missing values using item correlation substitution: A missing value for one item is replaced by the value of the item correlating most highly with it (Huisman, 2000). Third, to assess whether it is legitimate to speak of futility culture or teachability culture, we examined whether an individual-level sense of futility and teachability expectations is shared among respondents within the schools. This is done by calculating an index of mean rater reliability (MRR) based on a one-way analysis of variance: MRR = (between mean square - within mean square)/between mean square. The MRR must be a minimum of 0.60 to permit an aggregation at the school level (see Glick 1985; Shrout & Fleiss, 1979). We provided the MRR for futility culture and teachability culture in the School-Level Variables section.

The qualitative analysis is based on semistructured, in-depth interviews in which "the interviewer asks certain, major questions the same way each time, but is free to alter the sequence and to probe for more information" (Fielding, 1993, p. 136). The in-depth approach was necessary to create an informal atmosphere that would allow the respondents to speak at length with the interviewer and generate mutual trust, a process that increases the reliability of the data. During the interviews, the researcher intentionally avoided posing direct questions about school composition or teachability expectations because we did not want to influence or bias respondents' answers (see Appendix A). The interviews were conducted in Dutch. Because of the translation into English, some nuances and typical Dutch expressions may be lost in this report. All interviews were audiotaped and transcribed. These transcriptions were analyzed with detailed reading and successive open and focused coding (Esterberg, 2002). For this coding process, we used qualitative data software NVivo 9. The first author of this article was responsible for the primary coding process and the selection of the quotes to be presented in the analysis. To ensure reliability and validity, the second and the third authors of this article independently reread the coding and the selected quotes. They provided feedback to the first author in case of disagreement regarding coding and interpretation of the quotes. Both the list of the used codes and the frequencies of coding for "black" and "white" schools are presented in Appendix C. Appendix D provides two samples of coded raw data.

Research Objective 1

In the quantitative element of the first research objective, we investigated the impact of schools' ethnic and socioeconomic composition on individual teachability expectations. To rule out accuracy and selection effects, we controlled for previous achievement, school denomination, and school size at the school level. At the individual teacher level, we controlled for gender, years of experience, parental SES, and teacher type (see the Variables section). Second, we investigated the impact of school ethnic and socioeconomic composition on teachers' collective teachability culture, controlling for previous achievement, school denomination, and school size. In the qualitative element of the first research objective, we explored how teachers and principals think about the socioeconomic and ethnic composition of the school and why compositional school features affect their beliefs and expectations regarding their pupils.

Research Objective 2

For the second research objective, we started by quantitatively estimating the impact of socioeconomic and ethnic school composition on pupils' math achievement. To rule out selection effects, we controlled at the school level for previous achievement composition, school denomination, and size, and at the individual pupil level for gender, grade, parental SES, and ethnicity. To explore whether school ethnic or socioeconomic composition was related to pupils' math performance, we included teachers' teachability culture in the second model in order to assess whether it mediated the impact of school composition. In the third model, we included pupils' sense of futility and futility culture. Additionally, we provided a path-model diagram to illustrate the indirect effects. In the qualitative element of this second research objective, we explored whether and how the school staff communicated its beliefs and expectations to the pupils.

INDIVIDUAL PUPIL-LEVEL VARIABLES

Math Achievement

The last dependent variable in our analysis is math achievement, measured using a test developed by Dudal and Deloof (2004), which is based on standardized educational attainment levels for Flemish students in the

Table 1. Descriptive Statistics for Variables: Frequencies, Range, Means (for Continuous Variables), and Proportions/Percentages (for Categorical Variables) and Standard Deviations (SD)

	N	**Min**	**Max**	**Mean**	*SD*
School level					
Ethnic composition					
(% nonnative)	66	2.63	100	52.669	33.999
SES composition					
(% working class)	66	3.95	96.15	38.505	22.289
Previous achievement composition					
(% grade retention)	66	0	72.41	29.293	17.468
School denomination					
(1 = Catholic)	66	0	1	0.485	
School size					
	66	91	526	225.458	104.528
Pupils' futility culture					
	66	1.22	3.09	2.092	0.279
Teachers' teachability culture					
	66	2.64	4.53	3.454	0.378
Individual pupil level					
Math achievement	2754	6	60	41.432	10.645
Sense of futility	2772	1	5	1.990	0.699
Grade (1 = sixth)	2782	0	1	0.300	
Gender (1 = girl)	2765	0	1	0.513	
Previous achievement (grade retention)	2725	0	1	0.269	
Ethnicity (1 = nonnative)	2782	0	1	0.485	
SES					
Blue collar	2760	0	1	0.401	
Technicians	2760	0	1	0.153	
Self-employed	2760	0	1	0.070	
Lower white collar	2760	0	1	0.179	
Service class	2760	0	1	0.196	
Individual teacher level					
Teachability expectations	657	1.74	4.93	3.444	0.487
Gender (1 = male)	675	0	1	0.188	
Ethnicity (1 = nonnative)	686	0	1	0.061	
Parental SES					
Blue collar	679	0	1	0.196	
Technicians	679	0	1	0.199	
Self-employed	679	0	1	0.094	
Lower white collar	679	0	1	0.292	
Service class	679	0	1	0.219	
Years of experience	690	1	41	15.970	10.146
Teacher type (1 = subject)	692	0	1	0.408	

fifth grade of their primary education. The test consists of 60 items, which cover elementary arithmetic, problem solving, fractions, decimals, and long division. The test yielded a Cronbach's alpha of 0.91. In our data, pupils achieved on average 44.43 (SD = 10.65) in a theoretical range from 0 to 60 (Table 1).

Sense of Futility

Pupils' feelings of academic futility were measured using the sense of futility scale (Brookover et al., 1978). The four items are: "People like me will not have much of a chance to do what we want to in life," "People like me will never do well in school, even though we try hard," "At school, students like me seem to be unlucky," and "Achievement at school is just a matter of luck." Each item has five possible responses ranging from *absolutely disagree* (scored 1) to *completely agree* (scored 5). Although this scale yielded a relatively low Cronbach's alpha (0.62), an explanatory factor analysis revealed that there was one underlying dimension for this scale, explaining 47.46% of the variance. In our data, pupils scored 1.99 on average (SD = 0.70; Table 1).

Grade

Our research concentrated on fifth- and sixth-grade pupils. Therefore, in 2009, most of the respondents were aged 11 (about 49%) or 12 (about 36%). Given the high correlation between age and grade (Cramer's V = 0.64; p < 0.001), we had to choose one of these two variables for the model. Because the sample was unbalanced in terms of grade, we opted for the grade (Table 1).

Gender

The pupils' sample was divided equally with respect to gender, with around 51% female respondents (boy = 0, girl = 1; Table 1).

Previous Achievements (Grade Retention)

Our data did not include a direct measure of pupils' previous achievement (see Discussion section). As an alternative metric, we asked pupils whether they had to repeat a year in the past. This is because retention is regarded as a reliable indicator of poor previous academic performance (Alexander, Entwisle, & Dauber, 1994). Table 1 indicates that 27% of the pupils in our sample were repeaters.

Ethnicity

Regarding pupils' ethnic background, we distinguished between native Belgians and nonnatives. In line with the official Flemish definition of nonnative groups (in Dutch, *allochtonen*), the principal criterion was the birthplace of pupils' grandmothers. If these data were missing, we used parents' birthplaces instead because as most nonnative pupils in Flanders are second- or third-generation immigrants. As is common practice, and in line with the official Flemish definition of nonnative groups, students of Western European origins were considered to be of native descent. As such, we created a dichotomous variable (0 = native, 1 = nonnative). Table 1 shows that 48% of our respondents were categorized as nonnatives.

SES

We measured the family SES of the pupils by assessing the occupational prestige of the father and mother (Erikson, Goldthorpe, & Portocarero, 1979). Information about the occupation of the parents was supplied by the students. The highest prestige occupation of the parents was used as an indicator for the SES of the family. We identified five distinct groups, which are hierarchically ordered with regard to social status: (1) unemployed and blue-collar workers (working class), (2) technicians and supervisors, (3) small proprietors and self-employed workers, (4) white-collar employees, and (5) higher-grade professionals and entrepreneurs (service class) (Table 1).

INDIVIDUAL TEACHER-LEVEL VARIABLES

Teachability Expectations

Teachers' teachability expectations regarding their pupils were measured by 31 items of the Teachable Pupil Survey (Kornblau, 1982). The scale is made up of 31 items assessing expectations of pupil characteristics encompassing school-adjusted behaviors (such as "concentrate well," "enjoy schoolwork"), cognitive-motivational behaviors (such as "intelligent," "curious"), and personal-social behaviors (such as "calm," "confident"). The items such as "I think that in this school, the pupils in general are inquisitive" were rated from *absolutely disagree* (scored 1) to *definitely agree* (scored 5). Teachers' scores on average were 3.44 (SD = 0.49); the scale ranged between 1.74 and 4.93 (Table 1). Cronbach's alpha for the teachability expectations scale was 0.95.

Gender

Most teachers in our sample were female (81%; Table 1).

Ethnicity

Teachers' ethnicity was determined by self-identification. Teachers were asked to identify themselves as being from native Belgian or nonnative background. Six percent of the teachers in our sample identified themselves as being nonnative (Table 1).

Parental SES

The parental SES of teachers was measured similarly to those of pupils (cf. supra; Table 1).

Years of Experience

Teaching experience was measured by the number of years that a teacher had been working in his or her participating school. On average, teachers in our sample had 16 years of teaching experience ($SD = 10.15$; Table 1).

Teacher Type

We distinguished between those who teach regular classes (code 0) and specific subjects, such as physical education or music (code 1). In our sample, around 60% of the teachers were identified as regular class teachers (Table 1).

SCHOOL-LEVEL VARIABLES

Ethnic Composition

The ethnic make-up of a school is measured by the percentage of nonnative respondents in the schools. On average, the percentage of nonnative pupils was 52.67% ($SD = 34.00$), ranging from 2.63% to 100% (Table 1). See Table 2 for the bivariate correlations among school-level variables.

SES Composition

The socioeconomic composition of the school was calculated by aggregating the individual family SES of pupils. Specifically, this was done by

calculating the percentage of pupils from a working-class background. On average, the proportion of these pupils was 38.50% (*SD* = 22.29), ranging from 3.95% to 96.15% (Table 1).

Previous Achievement Composition

The previous achievement composition of a school was measured by the percentage of pupils who were repeaters. On average, the percentage of pupils who experienced grade retention was 29.29% (*SD* = 17.47), ranging from 0% to 72.41% (Table 1).

School Denomination

The school denomination variable was split between 34 publicly run schools and 32 privately run Catholic schools. This reflects the educational situation in Flanders, where around half of the schools are Catholic schools. It should be noted that in the Flemish educational system, no distinction is made between publicly run schools and privately run (Catholic) schools with respect to state support.

School Size

We determined school size from the total number of pupils using data gathered from the Flemish Educational Department. The number of pupils varied from 91 in the smallest school to 526 in the largest. The schools had an average of 225 pupils (*SD* = 104.53; Table 1).

Futility Culture

Pupils' futility culture was measured by aggregation of individual pupil-level scores of sense of futility. As mentioned in the Research Design section, to examine whether feelings of futility were truly shared within schools, we calculated the index of MRR. The sense of futility scale yielded a MRR of 0.73. This means that speaking of futility *culture* is legitimate because feelings of futility are *more* shared within schools than they are shared between schools. The mean futility culture was 2.09 (*SD* = 0.28), within a range of 1.22 to 3.09. A one-way analysis of variance shows that the mean sense of futility differed significantly between the schools ($p < 0.001$).

Teachability Culture

Teachers' teachability culture was measured by aggregating individual teacher-level scores for teachability expectations. The teachability expectations yielded a MRR of 0.88. This means that speaking of teachability *culture* is also legitimate. The mean score for teachability culture was 3.45 (*SD* = 0.38), within a range of 2.64 and 4.53 (see Table 1). A one-way analysis of variance shows that the mean teachability expectation differed significantly among the schools ($p < 0.001$).

Table 2. Bivariate Pearson Correlations Between School Features ($N = 66$)

	1.	2.	3.	4.	5.	6.	7.
1.	1						
2.	0.885***	1					
3.	0.671***	0.636***	1				
4.	-.026	-0.005	-0.292*	1			
5.	-0.299*	-0.354**	-0.398**	0.018	1		
6.	0.531***	0.585***	0.475***	0.053	-0.092	1	
7.	-0.683***	-0.658***	-0.623***	-0.070	0.207	-0.567***	1

*$p < 0.05$. **$p < 0.01$. *** $p < 0.001$.
Notes:
1. Ethnic composition (% nonnative)
2. SES composition (% working class)
3. Previous achievement composition (% grade retention)
4. Denomination (1 = Catholic)
5. Size (more pupils)
6. Futility culture (more feelings of futility)
7. Teachability culture (higher teachability expectations)

RESULTS

RESEARCH OBJECTIVE 1

The first research objective was to investigate whether and how school compositional characteristics influence teachability expectations. To assess whether the school context matters with respect to these expectations, the variance components from the unconditional models were assessed (Table 3, Model 0). We were particularly interested in school-level variance, computed as the between-school variance component divided by the sum of the within-school and between-school variance, $\tau 0/(\tau 0 + \sigma 2)$. We calculated that a very large amount of the variance in

Table 3. Results of Multilevel Analysis for Teachers' Individual Teachability Expectations

		Model 0	Model 1	Model 2
School Level				
Ethnic concentration	γ	γ^* —	-0.005 (0.001) -0.370***	—
(% nonnative)				
SES composition	γ	—	—	-0.007 (0.002)
(% working class)	γ^*			-0.312***
Previous achievement composition	γ γ^*	—	-0.007 (0.003) -0.266**	-0.009 (0.003) -0.330***
School denomination	γ γ^*	—	-0.141 (0.064) -0.146*	-0.145 (0.067) -0.150*
(1 = Catholic)				
Size	γ γ^*	—	- 0.000 (0.000) -0.040	0.000 (0.000) -0.065
Teacher level				
Gender	γ γ^*	—	0.049 (0.040) 0.040	0.046 (0.040) 0.037
(1 = female)				
Ethnicity	γ γ^*	—	0.094 (0.064) 0.046	0.088 (0.065) 0.044
(1 = nonnative)				
SES				
(reference: service class)				
Blue collar .	γ γ^*	—	0.073 (0.049) 0.059	0.071 (0.049) 0.057
Technicians	γ γ^*	—	0.053 (0.047) 0.043	0.052 (0.047) 0.042
Self-employed	γ γ^*	—	-0.011 (0.059) -0.007	-0.015 (0.059) -0.009
Lower white collar	γ γ^*	—	0.029 (0.042) 0.027	0.030 (0.042) 0.028
Year teaching experience	γ γ^*	—	-0.002 (0.002) -0.033	-0.002 (0.002) -0.032
Teacher type	γ γ^*	—	0.050 (0.032) 0.051	0.050 (0.032) 0.050
(1 = nonregular)				
Variance components				
Between schools	τ_0	0.119***	0.042***	0.047***
Within school	σ^2	0.139***	0.137***	0.137***

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Note. Gamma coefficients (γ), standardized gamma coefficients (γ^*), standard errors (in parentheses) and variance components.

teachers' teachability expectation lay between schools 46.12% ($p <$ 0.001). This justified the need for a multilevel analysis.

Models 1 and 2 in Table 3 make clear that both ethnic and socioeconomic school composition are related to teachers' teachability expectations, that is, teachers have lower teachability expectations in schools with a higher share of nonnative pupils (standardized gamma coefficient $\gamma^* =$ -0.370, $p < 0.001$) and a higher share of working-class pupils ($\gamma^* = -0.312$, $p < 0.001$). Nevertheless, teachability expectations are almost equally influenced by pupils' previous academic performance ($\gamma^* =$ between -0.266 and -0.330, $p < 0.01$; Table 3). This means that in schools with a higher proportion of pupils who have experienced grade retention, teachers are inclined to expect their pupils to be less teachable. It should be noted that no individual teacher-level variable included in our models was significantly related to teachability expectations.

We found similar results for teachers' collective teachability expectations, that is, their teachability culture (see Table 4). A lower level of teachability culture was found in schools with a higher share of nonnatives (standardized beta $\beta^* = -0.422$, $p < 0.001$, Model 1) and a higher share of working-class pupils ($\beta^* = -0.396$, $p < 0.001$, Model 2). Teachers' collective teachability expectations were also strongly related to pupils' average previous achievements ($\beta^* =$ between -0.435 and -0.475, $p < 0.001$; Table 4).

Table 4. Results of Regression Analysis for Teachers' Collective Teachability Culture

		Model 1	Model 2
School Level			
Ethnic concentration	β	0.005 (0.001)	—
	β* -	-0.422***	
(% nonnative)			
SES composition	β	—	-0.007 (0.002)
	β*		-0.396***
(% working class)			
Previous achievement composition	β	-0.009 (0.003)	-0.010 (0.003)
	β*	-0.435***	-0.475***
School denomination	β	-0.157 (0.067)	-0.154 (0.069)
	β*	-0.207*	-0.204*
(1 = Catholic)			
Size	β	0.000 (0.000)	0.000 (0.000)
	β*	-0.091	-0.114
Adjusted R²		0.542***	0.536***

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Note. Beta coefficients (β), standard errors (in parentheses) and standardized beta coefficients (β*)

The in-depth interviews with teachers and principals may explain why the ethnic and SES composition of schools are related to teachers' teachability expectations and culture. As noted in the Research Design section, during interviews, the researcher avoided posing direct questions about school composition as long as the issue was not brought up by respondents themselves. Nevertheless, the results indicate that among teachers in schools with a high share of nonnative and working-class pupils (Black Square, Black Triangle, and Black Circle), the topic of school composition was more salient: These teachers *spontaneously* discussed school composition at the start of the interview when they were asked about their background or their first impressions of the school. The coding frequencies (Appendix C) also point in this direction: The code 2.4 refers to teachers' perceptions about the school composition. This code is used in 80% of the interviews with teachers in "black" schools, whereas this figure is only 50% in "white" schools. The salience of school composition for teachers in black schools might be illustrated with these quotes:

> Researcher: I think it [the recorder] is recording. Ok, my first question is how old are you?
>
> Laura: Oh, 34
>
> Researcher: 34. And how long have you been teaching?
>
> Laura: 11 years
>
> Researcher: For 11 years. And have you always been a teacher in this school?
>
> Laura: At this school for 9 years and one and a half years elsewhere, *it was also a migrants' school.* (*Teacher, Black Square, female, 34*)

> ⸺

> Researcher: And what was your overall impression of the school when you started working here?
>
> Tom: At that time, I took a summer job at a playgroup. And that playgroup enrolled children from the housing projects of * [a city]. It was basically the same audience [of pupils] as now in this school. So I was used to it. Back then, they were also . . . not only Turks, but also Italians, Greeks, it was always a mixed audience and here it was the

same. (*Teacher, Black Circle, male, 54*)

——

In contrast, for teachers in schools with a low share of nonnative and working-class pupils (White Circle and White Triangle), the school composition was taken for granted; they rarely spontaneously mentioned the socioeconomic or ethnic composition of their school. When asked about their first impressions of the school, these teachers were more focused on issues such as its size or the design of the buildings. This is also illustrated by the coding frequencies (Appendix C): Code 2.9 (school size) and code 2.2 (school buildings & material design) are only used in the interviews with teachers in "white" schools. Two quotes might illustrate this:

Researcher: And when you started working here, what was your overall impression of the school?

Koen: As a child, I was a pupil in this school. At that time the school was not fully surrounded with buildings, like it is now. It was 40 years ago, you know, and now they have built a lot of new buildings and housing estates. (*Teacher, White Circle, male, 52*)

——

Ann: The first time I came here, I had a feeling like: Wow, walls all over, nothing else. As a young teacher, I thought, I will never stay here. That was my first impression, these buildings frightened me a lot, I was not used to it. (*Teacher, White Triangle, female, 44*)

——

This does not mean that in White Triangle and White Circle, teachers did not say anything about school composition; instead, they brought up the topic when the researcher asked how schools might *differ* from each other (see also code 4.1 in Appendix C). For instance:

Caroline: I think that schools can differ depending on the [educational] level. I think it is also dependent on the target group of the school. If I compare with * [the name of a school nearby], which have a greater percentage of migrants and therefore they have different ability groups. (*Teacher, White Circle, female, 37*)

———

Piet: Anyway, the neighborhood [can make a difference]. If I compare with the school where my children are enrolled, that is the easiest to compare with, anyhow the neighborhood and that is also strongly related to the social origins [of pupils]. (*Teacher, White Triangle, male, 44*)

———

Given that we have established that school composition is more salient for teachers in schools with a higher share of nonnative and working-class pupils, we can explore how this affects their teachability expectations. To our surprise, teachers working in schools with a high concentration of nonnative and working-class pupils evaluated school composition in very positive terms. Working in such contexts was described as challenging and exciting. Saskia even noted that she would never want to work in a school other than Black Square, and Jaclyn explained that the ethnic school composition of Black Triangle was the reason that she chose to enroll her own child there:

Researcher: And on which aspects does that [the school composition] have an influence?

Saskia: I think personally it is very enriching and challenging. I would no longer want another type of school, although here, it costs much more effort and it is intensive. I find it much more satisfying here. We are straightforward and the solidarity here, I find it very rewarding. I wouldn't want it any different. (*Teacher, Black Square, female, 30*)

———

Jaclyn: I think this multicultural environment is an incredible learning environment. And this is one of the reasons why my daughter is enrolled here in this school, because we do not live nearby, but I'm glad she is here in this school, because, because I think it important that she is exposed to it, and thus that she grows up tolerant. (*Teacher, Black Triangle, female, 30*)

———

However, teachers perceived one major problem related to the high share of nonnative and working-class pupils: language (i.e., the use of standard Dutch) and the alleged linguistic deficiencies of the pupils. Apart from one teacher (Simon, Black Circle, 56), who talked about the benefits of bilingualism, most teachers expressed (implicitly and explicitly) lower teachability expectations because of these language-related issues. Hence, the issue of language use was very salient for teachers. This is illustrated by the frequent use of code 3.1.3 (see Appendix C). This code refers to issues of language use and proficiency related to the ethnic composition of schools, and it was one of the most used codes, especially among teachers in black schools (used in 87% of the interviews in black schools). Some quotes might illustrate this point:

> Kelly: They lag behind, *already before they started, at baseline* . . . Without knowing the [Dutch] language properly, you will lag behind in understanding things. You must also use the language for math or if you want to do science, or later, to have conversations with your boss, you know. Even if you are very smart and know a lot of things, without mastering the common language, it will be difficult. (*Teacher, Black Circle, female, 26*)

> ——

> Sonja: We have a [Dutch] language problem, without any doubt. *Already the toddlers, when they are 2 1/2 years old.* That is a language problem that we have to deal with and it makes it less easy sometimes. (*Principal, Black Circle, female, 50*)

> ——

> Kristof: When they *[the pupils]* have to deal with more Dutch-speaking children, when there is more interaction, then it is easier to learn the language and they'll make a little more effort to learn the language. Honestly, if we could choose, then we would prefer 50/50, maybe with 50% nonnatives and 50% Belgians. That might have been the best mix. (*Teacher, Black Circle, male, 32*)

> ——

> Jaclyn: Anyhow, I believe that because in a school where most children do not speak Dutch properly, the level of language *cannot* be

high or will be less than in a school where everybody speaks Dutch. [Here] we have to teach another way and we have to start at the basics anyway. (*Teacher, Black Triangle, female, 30*)

———

Thus, pupils in schools with a high ethnic minority share are expected to have a language deficiency at the baseline *before* they enter the school, resulting in low teachability expectations. The same argument is made for native Belgian working-class pupils who speak in dialect, that is, non-standard forms of Dutch:

Sarah: Here, there are equally children with Belgian roots, but they speak a lot of dialect and so they have also a lot of problems with the [Dutch] language. (*Teacher, Black Square, female, 29*)

These low teachability expectations due to alleged linguistic deficiencies were so persistent that even in White Circle, a school with few nonnative and working-class pupils, teachers believed that it must be difficult to teach in other schools that enrolled high numbers of nonnative and working-class pupils due to these alleged linguistic deficiencies in Dutch. For instance, Koen, who admitted to having no experience at all with any other type of school composition, already had a clear belief that it must be "terribly difficult" to be a teacher in those schools:

Researcher: And what factors make schools different from each other?

Koen: It is difficult to tell because I don't know other schools, not well enough, I have never been a teacher elsewhere. But I can *imagine* that a school with another audience [composition], let's say a school in *street [a street with a high concentration of nonnative and working-class pupils], first and foremost, they've got a lot of foreign children, a lot of them barely speak the [Dutch] language. I have not experienced it, but when I think that in the * [a school nearby with a high concentration of nonnative, working-class pupils] there are Bulgarians and Slovenians that barely speak the [Dutch] language. I think it must be terribly difficult to be a teacher there and basically to teach something. (*Teacher, White Circle, male, 52*)

The linguistic backgrounds of the few nonnative pupils in White Circle, on the other hand, were considered to be unproblematic: According to

the teachers, the parents of these nonnative pupils had deliberately chosen to enroll their children in White Circle because they did not want their child to speak their mother tongue at school:

> Koen: Here, we have little trouble with that [language deficiencies]. Because most [nonnatives] who come to our school, those two [pupils] in the sixth grade, they came here because they didn't want to go to an inner-city school because there are too many Turks and Moroccans there and little Dutch is spoken. Their parents have decided themselves: My children have to speak better Dutch because they will grow up here and later they have to work here. (*Teacher, White Circle, male, 52*)

> ——

> Hans: For instance, the migrant children here in this school, their folks have chosen to come to our school because here Dutch is spoken, I mean, people who want to become integrated, you know, of course it is to their benefit that their children speak Dutch well. (*Teacher, White Circle, male, 58*)

The use of dialects by native Belgian pupils was also considered unproblematic in White Circle because there were very few working-class pupils who spoke them:

> Researcher: Do the children speak standard Dutch here, or does it happen that they speak in a dialect?

> Lise: Real dialect, that is rarely spoken here, I mean, we all tend to not pronounce the last letters of a word, so students and teachers also don't do it sometimes, but isn't that standard Dutch? You know, it's not, not a true dialect. (*Teacher, White Circle, female, 47*)

> ——

RESEARCH OBJECTIVE 2

Given that teachers hold lower teachability expectations in schools with a high share of nonnative and working-class pupils, we examine next whether collective teachability culture might account for the potential impact of ethnic and SES composition on pupils' math achievement.

The variance components from Model 0 (Table 5) indicate that

26.33% ($p < 0.001$) of the variance in pupils' match achievement occurs between schools. This justifies the need for a multilevel analysis. In Model 1 (Table 5), we examine the impact of ethnic school composition on pupils' math achievement, controlling for several variables at the individual and school levels. The percentage of nonnative pupils at school is not significantly related to pupils' math achievement ($\gamma^* = -0.120$, $p = 0.13$). Additional analyses have shown that pupils' previous achievements and individual-level SES are particularly responsible for the initial negative association between ethnic school composition and math achievement (analyses not shown here). In Model 2 (Table 5), we redo this analysis for the school SES composition. Our results indicate that even when control variables are taken into account, the percentage of pupils from a working-class background at school level is negatively related to pupils' math achievement ($\gamma^* = -0.235$, $p < 0.01$). Therefore, in Model 3, we examine whether teachability culture mediates the impact of SES composition on pupils' math achievement. However, Model 3 indicates that teachability culture is not significantly related to math achievement ($\gamma^* = 0.057$, $p = 0.49$). Nevertheless, in Model 4, it becomes clear that pupils' sense of futility ($\gamma^* = -0.213$, $p < 0.001$) and futility culture ($\gamma^* = -0.258$, $p < 0.001$) are negatively associated with pupils' math achievement. Most important, after these variables are entered into the model, the effect of SES composition is noticeably reduced, and SES composition is no longer significantly related to math achievement ($\gamma^* = -0.103$, $p = 0.15$). Thus, although pupils' individual and shared feelings of having no control over academic success account for the impact of socioeconomic composition on math achievement, teachers' teachability culture does not have a *direct* significant impact. However, a multilevel path analysis (see diagram in Figure 2) shows that teachers' teachability culture is instead *indirectly* related to pupils' math achievement. Figure 2 shows that in schools with a higher share of working-class pupils, teachers have a reduced teachability culture ($\gamma^* = -0.396$, $p < 0.001$). In turn, a greater teachability culture is related both to lower futility culture ($\gamma^* = -0.241$, $p < 0.05$) and a lower sense of futility among pupils ($\gamma^* = -0.106$, $p < 0.05$). A greater sense of futility and futility culture ultimately result in lower math achievement (Figure 2).

Table 5. Results of Multilevel Analysis for Math Achievement

		Model 0	Model 1	Model 2	Model 3	Model 4
School level						
Ethnic composition:	γ	—	-0.037 (0.025)	—		—
	γ^*		-0.120			
(% nonnative)						
SES composition:	γ	—	—	-0.110 (0.035)	-0.100 (0.038)	-0.048 (0.032)
	γ^*			-0.235**	-0.214**	-0.103
(% working class)						
School denomination	γ	—	2.266 (1.258)	2.748 (1.178)	3.020 (1.254)	3.486 (1.016)
	γ^*		0.107	0.130*	0.143**	0.165***
(1 = Catholic)						
Size	γ	—	0.007 (0.006)	0.006 (0.006)	0.006 (0.006)	0.008 (0.005)
	γ^*		0.071	0.057	0.063	0.078
Previous achievement composition	γ	—	0.037 (0.053)	0.077 (0.048)	0.095 (0.055)	0.104 (0.045)
	γ^*		0.060	0.126	0.155	0.170*
Teachability culture	γ	—	—	—	1.582 (2.283)	-0.878 (1.898)
	γ^*				0.057	-0.031
Futility culture	γ	—	—	—	—	-9.890 (2.258)
	γ^*					-0.258***
Pupil level						
Grade	γ	—	5.534 (0.529)	5.552 (0.537)	5.569 (0.539)	4.825 (0.502)
	γ^*		0.238***	0.239***	0.240***	0.208***
(1 = sixth)						
Gender	γ	—	-1.833 (0.407)	-1.815 (0.406)	-1.823 (0.406)	-1.774 (0.393)
	γ^*		-0.086***	-0.085***	-0.086***	-0.083***
(1 = girl)						
Previous achievement (grade retention)	γ	—	-5.808 (0.416)	-5.825 (0.422)	-5.829 (0.422)	-5.217 (0.422)
	γ^*		-0.241***	-0.242***	-0.242***	-0.217***
Ethnicity	γ	—	-0.958 (0.586)	-0.853 (0.592)	-0.854 (0.589)	-0.693 (0.539)
	γ^*		-0.045	-0.040	-0.040	-0.033
(1 = nonnative)						
SES (ref: service class)						
Blue collar	γ	—	-5.139 (0.572)	-5.048 (0.573)	-5.034 (0.573)	-3.978 (0.558)
	γ^*		-0.236***	-0.232***	-0.231***	-0.183***
Technicians	γ	—	-5.119 (0.669)	-5.057 (0.672)	-5.045 (0.671)	-4.167 (0.655)
	γ^*		-0.173***	-0.171***	-0.170***	-0.141***
Self-employed	γ	—	-3.522 (0.743)	-3.503 (0.743)	-3.501 (0.743)	-2.864 (0.718)
	γ^*		-0.084***	-0.083***	-0.083***	-0.068***
Lower white collar	γ	—	-2.171 (0.596)	-2.130 (0.594)	-2.129 (0.594)	-1.509 (0.544)
	γ^*		-0.079***	-0.077***	-0.077***	-0.055**
Sense of futility	γ	—	—	—	—	-2.798 (0.220)
	γ^*					-0.213***
Variance components						
Between schools	τ_0	30.469***	16.686***	13.998***	14.261***	7.024**
Within schools	σ^2	85.231***	65.922***	65.813***	65.822***	61.513***

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.
Note. Gamma coefficients ( ), standardized gamma coefficients (*), standard errors (in parentheses), and variance components

**Figure 2. Path diagram of multilevel analysis on pupils' math achievement using SES composition: stan-
dardized gamma coefficients (*) as path coefficients**
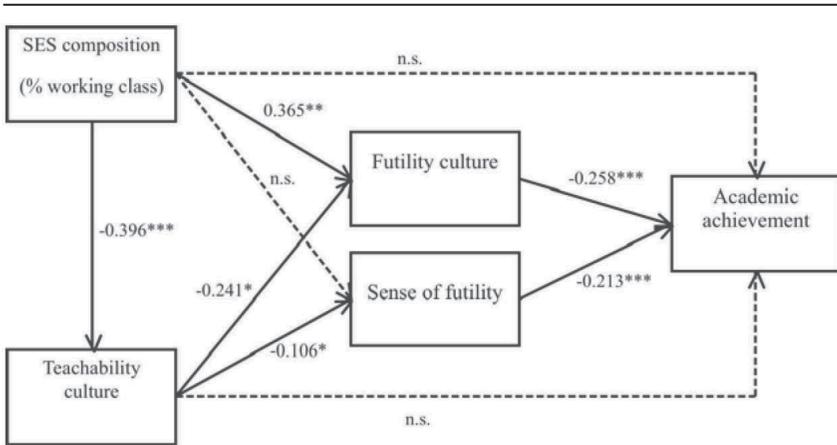
Note. At school level, controlling for previous achievement composition, denomination, and school size.
At pupil level, controlling for grade, gender, ethnicity, SES, previous achievement

   These quantitative analyses indicate that teachers' teachability culture
has an indirect impact on pupils' math achievement *through* pupils'
beliefs, that is, their sense of futility and futility culture. Thus, these teach-
ability expectations must be implicitly or explicitly communicated to
them. The qualitative in-depth interviews might explain how the teacha-
bility expectations explored in the preceding text are expressed.
Although there are many ways through which teacher expectations might
be communicated to pupils (see Rosenthal, 1973), our focus is on expres-
sions of low teachability expectations following from pupils' language use
and alleged linguistic deficiencies because the results from the first
research objective suggest that these linguistic issues are overwhelmingly
important in teachers' cognition.
   First, most teachers working in schools with a high share of nonnative
pupils explained that pupils (and also their parents) are required, and
frequently reminded, to speak exclusively in Dutch, arguing that not
speaking Dutch properly is expected to result in poor academic achieve-
ment:

   Researcher: What do you think is the decisive factor [regarding aca-
   demic achievement]?

Sarah: Here, *the language is the big problem*, the language plays an important role. That is, they [the pupils] go outside and they immediately start speaking Turkish. In the hall, again Turkish, with their friends, again in Turkish, when they quickly have to tell something, again Turkish. *So we are like constantly, all day long:* "Speak Dutch with each other, say it in Dutch." (*Teacher, Black Square, female, 29*)

—

Tom: The only thing that we have a problem with is that when these people [the parents] are in the playground with their children or with neighbors or family and they start speaking a foreign language. But we stress: "Please speak Dutch, especially when you are at the school, because *that can make or break everything, if you do not master the [Dutch] language, then your child will lag behind.*" (*Teacher, Black Circle, male, 54*)

—

These quotes show the implicit (Sarah) and the explicit (Tom) expressions of low teachability expectations on the part of school staff convinced that speaking a language other than Dutch results in low achievement for pupils. On the other hand, when asked about *socioeconomic* school composition, teachers and principals argued that both socioeconomic and ethnic composition are strongly interrelated. Implicitly, they noted that ethnic composition is the *marker* of socioeconomic school composition, which is considered the ultimate determinant of linguistic competency and the proper use of Dutch: Socioeconomically better situated nonnative parents and children are marked as "almost one of us":

Researcher: Is it really about the ethnic mix, or is it about the socioeconomic backgrounds of the students?

Sonja: I think it is a combination of both. I think it is impossible to regard it unconnectedly. Yes, I think it has to do with both. You see, often, those people that are socioeconomically disadvantaged are also the ones who make little effort to speak the [Dutch] language well. It is very interrelated. (*Principal, Black Circle, female, 50*)

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Rik: [Nonnative] pupils with high educated parents usually do also master the Dutch language very well. And at home they also speak Dutch all the time. *They have almost the same way of living as we do and they speak Dutch and everything.* While other [low educated] parents insist on speaking Turkish at home. *So they have difficulties with the language at school, with the result that their academic performance is much lower than other pupils,* right? (*Teacher, Black Square, male, 27*)

Thus, the difficulty of distinguishing between ethnic and socioeconomic composition is not only a matter of statistics (see Research Design section) but also emerged during the interviews.

Because the use of a "foreign" language or nonstandard Dutch is expected to result in reduced academic performance, school staff noted that the use of the mother tongue is formally forbidden in schools and that aversion toward pupils' mother tongues is communicated by strong and persistent encouragement of the exclusive use of standard Dutch:

Researcher: How about pupils' mother tongues in the school?

Rik: Normally, we forbid that, so it is not allowed to speak Turkish at school. But we see that when they are among each other, or when there are conflicts, that they quickly switch to the Turkish language. So we have to constantly watch over it, because even if they speak very quietly, we see that they trying to speak Turkish all the time. (*Teacher, Black Square, male, 27*)

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Maria: It is difficult to tackle this Turkish speaking at the playground because we have more than 90% Turkish children. One says something in Turkish and the other responds to it in Turkish, *even if we address them 83 times a day.* But, that would be less the case if we had a more healthy school mix. (*Principal, Black Square, female, 30*)

An exception to this rule is Black Triangle, where pupils were allowed to speak their mother tongue in the playground, but not in the classroom. Still, the preference for Dutch monolingualism was expressed:

Nadia: Here, children are allowed to speak their own language, but not in the classroom. So we don't address it in the playground. It

might happen that we will say: if possible in Dutch, it is better in Dutch, but at the playground it is allowed. (*Teacher, Black Triangle, female, 37*)

Second, the aversion to pupils' mother tongues is also articulated by the interior design of the schools. For instance, during our visit to Black Square, we noticed several posters (on each corner in the halls and on each door), on which "Here we speak Dutch" was written. At Black Circle, teachers were planning to use these types of decorations:

Kristof: We are planning to put Dutch proverbs on posters and hang them around the school to make clear that Dutch is very important, that it is something we should work on. (*Teacher, Black Circle, male, 32*)

Moreover, some teachers would punish pupils for not speaking Dutch properly. For instance:

Katja: The school regulations state that only Dutch should be spoken and otherwise they [pupils] get punished.

Researcher: And what do you specifically mean by punishing?

Katja: For example I work with tally marks, when they have five strokes, than they have to write down a page or clean the playground. But it is dependent on the group. With some groups, I have to punish more strictly and quickly. (*Teacher, Black Circle, female, 45*)

Overall, the teachers and principals from schools with a high share of nonnative and working-class pupils are convinced that the incorrect use of Dutch or the speaking of the mother tongue by pupils results in poor academic achievement. The devaluation of pupils' mother tongue is implicitly and explicitly communicated through restrictive language policies, persistent encouragement of the exclusive use of Dutch, and punishment for speaking the mother tongue. Ultimately, the pupils did not *choose* for their linguistic background that is continuously associated with lower academic performance. As such, this might explain why teachability expectations regarding pupils' linguistic background result in feelings of having no control over academic success, here measured by a higher sense of futility and futility culture.

DISCUSSION

CONCLUSIONS

The aim of this mixed-method study was to examine whether and how self-fulfilling prophecies mediate the impact of school composition on pupils' math achievement. Our two research objectives are investigated using both qualitative and quantitative data. For the first, we investigate quantitatively whether socioeconomic and ethnic school composition contribute to teachers' teachability expectations at the individual teacher level and the collective school level (i.e., teachability culture). Additionally, we use in-depth qualitative data from interviews with teachers and principals to investigate *why* school compositional characteristics are related to teachability expectations. As our second research objective, we examine quantitatively whether teachers' teachability culture accounts for the impact of school composition on pupils' math achievement. Because it is theorized that teacher expectancies might especially have an impact on pupils' academic achievement through pupils' perceptions of control over their achievement, we investigate the role of pupils' sense of academic futility and collective school-level feelings of academic futility (i.e., futility culture). In-depth interviews are used to explore the processes through which teachers express their expectations of pupils.

First, the results of multilevel regression analysis have shown that both teachability expectations and teachability culture are dependent on the socioeconomic and ethnic composition of schools. While being mainly accurate—that is, related to the previous achievement composition of schools—teachability expectations and culture are found to be lower in schools with a higher share of nonnative and working-class pupils. The in-depth interviews indicated that school composition is most salient for teachers in schools with a higher share of working-class and nonnative pupils. The linguistic backgrounds of these pupils are found to be considered particularly problematic in these schools. To be more specific, we identified the speaking of mother tongues by nonnative pupils and the use of nonstandard Dutch by working-class pupils as the most important contributors to lower teachability expectations. Regarding our second research objective, the results of the multilevel analyses have shown that socioeconomic composition is related to pupils' math achievement. More specifically, we found that pupils perform less well in schools with a higher share of working-class pupils. Although teachability expectations were not directly related to pupils' math achievement, the path analysis showed that teachability expectations are indirectly related to pupils' academic performance, specifically through pupils' sense of futility and futility

culture. Most important, we demonstrated that pupils' individual and shared feelings of having no control over academic success account for the impact of socioeconomic school composition; that is, after controlling for sense of futility and futility culture, socioeconomic composition was no longer significantly related to pupils' math achievement. The in-depth interviews indicated that staff working in schools with a large share of nonnative pupils communicate their lower teachability expectations by arguing that the incorrect use of Dutch and speaking the mother tongue result in poor academic achievement. In particular, the language use of working-class pupils was considered problematic, whereas the linguistic backgrounds of socioeconomically better situated pupils were considered "similar to ours." The devaluation of students' mother tongue was implic-itly and explicitly communicated through restrictive language policies at school, persistent encouragement of the exclusive use of Dutch, punish-ment for speaking a mother tongue, and decoration of schools with signs and posters announcing the importance of Dutch monolingualism. Although the preference of Dutch monolingualism and related actions that favor monolingualism might not be *intended* as an expression of low teachability expectation, it is most likely that the pupils perceive and internalize them as such. After all, we have shown that *their* linguistic background is constantly associated with poor academic achievement by the teachers. Most important, the pupils did not *choose* their own linguis-tic backgrounds. This might explain why teachability expectations that are specifically related to pupils' linguistic background cause pupils to believe that they have less control over academic success, that is, a higher sense of futility and futility culture. In other words, because the pupils have no control over their linguistic background, enduring associations of their linguistic background with poor achievement might trigger even more feelings of futility.

LIMITATIONS OF THE STUDY

Before we discuss the policy implication of our results, it is important to mention three weaknesses in this study. First, our data included only math achievement, and consequently, we do not have evidence on how school composition affects other achievement. However, Driessen (2002) has demonstrated that the ethnic and socioeconomic makeup of primary schools in The Netherlands have more effect on language achievement than on math achievement. Therefore, it is possible that we underesti-mate the impact of school composition on academic achievement.

A second potential limitation of this study relates to the cross-sectional design of our data: We could only indirectly rule out selection effects. For

instance, we had only a limited metric for pupils' previous academic achievement, that is, grade retention. Initially, our intention was to measure previous achievement using pupils' grade point average (GPA) from previous years. However, it turned out that many schools no longer use GPA and therefore could not provide this information; thus, we were unable to include GPA in our model. A second strategy could be using scores from previous standardized tests on math achievement that are collected by the schools. However, in Flanders, schools are not required to conduct standardized tests. Hence, these data were generally unavailable. Therefore, grade retention was the only standardized measure that we could use as a metric of previous achievements. Although grade retention is a limited measure, our data show that it has a large impact on academic achievement, and it largely reduced the initial impact of ethnic and socioeconomic composition. As such, the empirical results indicate that grade retention partly captures the impact of pupils' previous achievements. However, future research with longitudinal data could mostly overcome this problem.

A third weakness of this study is the coding strategy of the qualitative data. That is, only one researcher (the first author) was responsible for the coding process and the selection of the quotes to be presented in the analysis. The reliability might have been improved if the interviews were independently coded by more researchers and an agreement coefficient was calculated. However, given that the second and the third authors of the article independently reread the coding and provided feedback to the first author in case of disagreement, we believe that the reliability of the coding process is still acceptable.

POLICY IMPLICATIONS

With regard to educational policy, our study does clarify that the composition of schools matters in terms of students' academic achievement. Nevertheless, socioeconomic composition matters more than ethnic composition. However, the decision regarding whether to desegregate schools might not be based solely on the criterion of educational achievement. School segregation might even have beneficial effects on some noncognitive outcomes (for the impact of school segregation on noncognitive outcomes in Flanders, see Agirdag, Van Houtte, & Van Avermaet, 2011; Agirdag, Demanet, Van Houtte, & Van Avermaet, 2011). The results of this study indicate that even socioeconomic desegregation may not be needed if it is possible to reform schools with a larger share of working-class pupils so that they become more like schools that produce more favorable teachability expectations. In particular, teachers' attitudes

and beliefs regarding pupils' linguistic backgrounds might be the focus of educational reforms. First, teacher education programs might focus more on the potential harms of lower teachability expectations and teachability culture that rise in predominantly nonnative, working-class school settings. Indeed, one of the findings that emerged from the qualitative data was that teachers in these school settings evaluate their schools in very positive terms except for the linguistic backgrounds of the pupils in these schools. As such, teacher education programs might consider how teachers can valorize the linguistic backgrounds of their pupils and use pupils` multilingual repertoires as didactic capital (Sierens & Van Avermaet, 2010). In other words, linguistic backgrounds of pupils might be considered an asset instead of being regarded as a barrier to learning. Second, it is unlikely that these lower teachability expectations related to the alleged linguistic deficiencies emerge in a political vacuum. In the Study Setting section of this article, we noted that education policy makers strongly emphasize linguistic deficiencies as the ultimate cause of social inequality in education. This might explain why teachers expect their pupils to be less teachable in schools with a high concentration of nonnative, working-class pupils: The discourse on linguistic deficiencies might be implicitly imposed by the education system. Hence, policy makers might pay more attention to the potential benefits of the multilingual abilities of pupils rather than solely focusing on the supposed linguistic deficiencies in schools with a high share of nonnative and working-class pupils. Even if multilingual instruction is not feasible because of legal and practical constraints, the valorization of multilingualism might be striven for (Agirdag, 2010).

Acknowledgments

References

Abedi, J., Hofstetter, C. H., & Lord, C. (2004). Assessment accommodations for English language learners: Implications for policy-based empirical research. *Review of Educational Research, 74*(1), 1–28.

Agirdag, O. (2010). Exploring bilingualism in a monolingual school system: insights from Turkish and native students from Belgian schools. *British Journal of Sociology of Education, 31*(3), 307–321.

Agirdag, O., Demanet, J., Van Houtte, M., & Van Avermaet, P. (2011). Ethnic school composition and peer victimization: A focus on the interethnic school climate. *International Journal of Intercultural Relations, 35*(4), 465–473.

Agirdag, O., Hermans, M., & Van Houtte, M. (2011). Het verband tussen islamitische religie, religiositeit en onderwijsprestaties [The association between Islamic religion, religiosity, and academic achievement]. *Pedagogische Studiën, 88*(5), 339–353.

Agirdag, O., & Van Houtte, M. (2011). A tale of two cities: Bridging families and schools. *Educational Leadership, 68*(8), 42–46.

Agirdag, O., Van Houtte, M., & Van Avermaet, P. (2011). Ethnic school context and the national and sub-national identifications of pupils. *Ethnic and Racial Studies, 34*(2), 357–378.

Agirdag, O., Van Houtte, M., & Van Avermaet, P. (2012). Why does the ethnic and socioeconomic composition of schools influence math achievement? The role of sense of futility and futility culture. *European Sociological Review, 28*(3), 366–378.

Alexander, K. L., Entwisle, D. R., & Dauber, S. L. (1994). *On the success of failure: A reassessment of the effects of retention in the primary grades.* Cambridge, England: Cambridge University Press.

Bankston, C. L., & Caldas, S. J. (1996). Majority African American schools and social injustice: The influence of de facto segregation on academic achievement. *Social Forces, 75*(2), 535–555.

Bankston, C. L., & Caldas, S. J. (1998). Family structure, schoolmates, and racial inequalities in school achievement. *Journal of Marriage and the Family, 60*(3), 715–723.

Becker, H. S. (1952). Social-class variations in the teacher-pupil relationship. *Journal of Educational Sociology, 25*(8), 451–465.

Blommaert, J., & Van Avermaet, P. (2008) *Taal, onderwijs en de samenleving. De kloof tussen beleid en realiteit* [Language, education and the society. The gap between policy and reality]. Antwerp, Belgium: EPO.

Boado, H. C. (2007). Immigrant concentration in schools: Peer pressures in place? *European Sociological Review, 23*(3), 341–356.

Brookover, W. B., Schweitzer, J. H., Schneider, J. M., Beady, C. H., Flood, P. K., & Wisenbaker, J. M. (1978). Elementary-school social climate and school-achievement. *American Educational Research Journal, 15*(2), 301–318.

Brophy, J. E. (1983). Research on the self-fulfilling prophecy and teacher expectations. *Journal of Educational Psychology, 75*(5), 631–661.

Brown v. Board of Education, 347 U.S. 483 (1954).

Caracelli, V. J., & Greene, J. C. (1997). Crafting mixed-method evaluation designs. *New Directions for Evaluation, 1997*(74), 19–32.

Clark, K. B. (1955). *Prejudice and your child.* Boston, MA: Beacon Press.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). *Equality of educational opportunity.* Washington, DC: U.S. Department of Health, Education, and Welfare, Office of Education.

Cooper, H. M. (1979). Pygmalion grows up. Model for teacher expectation communication and performance influence. *Review of Educational Research, 49*(3), 389–410.

Cooper, H. M. (1985). Models of teacher expectation communication. In J. B. Dusek (Ed.), *Teacher expectancies* (pp. 135–158). Hillsdale, NJ: Erlbaum.

Driessen, G. (2002). School composition and achievement in primary education: A large-scale multilevel approach. *Studies in Educational Evaluation, 28*(4), 347–368.

Driessen, G. (2007). *Peer group effecten op onderwijsprestaties. Een internationaal review van effecten, verklaringen en theoretische en methodologische aspecten* [Peer group effects on educational achievement. An international review of impacts, explanations and theoretical and methodological aspects]. Nijmegen, The Netherlands: ITS–Radboud Universiteit.

Dronkers, J. (2010). *Positive but also negative effects of ethnic diversity in schools on educational performance? An empirical test using cross-national PISA data.* Unpublished manuscript, Maastricht University, Maastricht, The Netherlands.

Dudal, P., & Deloof, G. (2004). *Vrij centrum voor leerlingenbegeleiding. Leerlingenvolgsysteem. Wiskunde: Toetsen 5 - Basisboek* [Free Center for Student Guidance. Pupil tracking system. Mathematics Keys 5: Basic book]. Antwerp, Belgium: Garant.

Dumay, X., & Dupriez, V. (2008). Does the school composition effect matter? Evidence from Belgian data. *British Journal of Educational Studies, 56*(4), 440–477.

Dusek, J. B., & Joseph, G. (1985). The bases of teacher expectancies. In J. B. Dusek (Ed.), *Teacher expectancies* (pp. 229–250). Hillsdale, NJ: Erlbaum.

Erikson, R., Goldthorpe, J. H., & Portocarero, L. (1979). Intergenerational class mobility in 3 Western European societies: England, France and Sweden. *British Journal of Sociology, 30*(4), 415–441.

Esterberg, K. G. (2002). *Qualitative methods in social research.* Boston, MA: McGraw-Hill.

Fekjaer, S. N., & Birkelund, G. E. (2007). Does the ethnic composition of upper secondary schools influence educational achievement and attainment? A multilevel analysis of the Norwegian case. *European Sociological Review, 23*(3), 309–323.

Felouzis, G. (2003). La ségrégation ethnique au collège et ses conséquences [Ethnic segregation at secondary school and its consequences]. *Revue Francaise De Sociologie, 44*(3), 413–447.

Fielding, N. (1993). Qualitative interviewing In G. N. Gilbert (Ed.), *Researching social life* (pp. 130–145). London, England: Sage.

Findley, M. J., & Cooper, H. M. (1983). Locus of control and academic-achievement. A literature review. *Journal of Personality and Social Psychology, 44*(2), 419–427.

Finn, J. D. (1972). Expectations and the educational environment. *Review of Educational Research, 42*(3), 387–410.

Glick, W. H. (1985). Conceptualizing and measuring organizational and psychological climate. Pitfalls in multilevel research. *Academy of Management Review, 10*(3), 601–616.

Halvorsen, A. L., Lee, V. E., & Andrade, F. H. (2009). A mixed-method study of teachers' attitudes about teaching in urban and low-income schools. *Urban Education, 44*(2), 181–224.

Harvey, D. G., & Slatin, G. T. (1975). Relationship between child's SES and teacher expectations. Test of middle-class bias hypothesis. *Social Forces, 54*(1), 140–159.

Huisman, M. (2000). Imputation of missing item responses: Some simple techniques. *Quality and Quantity, 34*(4), 331–351.

Jacobs, D., Rea, A., & Teney, C. (2009). *De sociale lift blijft steken. De prestaties van allochtone leerlingen in de Vlaamse Gemeenschap en de Franse Gemeenschap* [The social lift stops working. The performance of immigrant pupils in the Flemish community and the French community]. Brussels, Belgium: Koning Boudewijnstichting.

Jussim, L. (1986). Self-fulfilling prophecies: A theoretical and integrative review. *Psychological Review, 93*(4), 429–445.

Jussim, L. (1989). Teacher expectations. Self-fulfilling prophecies, perceptual biases, and accuracy. *Journal of Personality and Social Psychology, 57*(3), 469–480.

Jussim, L., & Eccles, J. (1992). Teacher expectations: Construction and reflection of student-achievement. *Journal of Personality and Social Psychology, 63*(6), 947–961.

Jussim, L., Eccles, J., & Madon, S. (1996). Social perception, social stereotypes, and teacher expectations: Accuracy and the quest for the powerful self-fulfilling prophecy. *Advances in Experimental Social Psychology, 28*, 281–388.

Kornblau, B. (1982). The teachable pupil survey: A technique for assessing teachers' perceptions of pupil attributes. *Psychology in the Schools, 19*(2), 170–174.

Lee, V. E., Dedrick, R. F., & Smith, J. B. (1991). The effect of the social-organization of schools on teachers efficacy and satisfaction. *Sociology of Education, 64*(3), 190–208.

Lee, V. E., & Loeb, S. (2000). School size in Chicago elementary schools: Effects on teachers' attitudes and students' achievement. *American Educational Research Journal, 37*(1), 3–31.

McKown, C., & Weinstein, R. S. (2008). Teacher expectations, classroom context, and the achievement gap. *Journal of School Psychology, 46*(3), 235–261.

Merton, R. K. (1968). *Social theory and social structure* (1968 enlarged ed.). New York, NY: Free Press.

Orfield, G. (1983). *Public school desegregation in the United States, 1968-1980*. Washington, DC: Joint Center for Political Studies.

Organisation for Economic Co-Operation and Development. (2006). *Where immigrant students succeed: A comparative review of performance and engagement in Pisa 2003*. Paris, France: Author.

Riehl, C. (2001). Bridges to the future: The contributions of qualitative research to the sociology of education. *Sociology of Education, 74*, 115–134.

Rist, R. C. (1970). Student social class and teacher expectations: Self-fulfilling prophecy in ghetto education. *Harvard Educational Review, 40*(3), 411–451.

Rosenthal, R. (1973). Pygmalion effect lives. *Psychology Today, 7*(4), 56–63.

Rosenthal, R., & Jacobson, L. (1968). *Pygmalion in the classroom: Teacher expectation and pupils' intellectual development*. New York, NY: Holt.

Rosenthal, R., & Rubin, D. B. (1978). Interpersonal expectancy effects: The first 345 studies. *Behavioral and Brain Sciences, 1*(3), 377–386.

Rumberger, R. W., & Palardy, G. J. (2005). Does segregation still matter? The impact of student composition on academic achievement in high school. *Teachers College Record, 107*(9), 1999–2045.

Ryabov, I., & Van Hook, J. (2007). School segregation and academic achievement among Hispanic children. *Social Science Research, 36*(2), 767–788.

Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations. Uses in assessing rater reliability. *Psychological Bulletin, 86*(2), 420–428.

Sierens, S., & Van Avermaet, P. (2010). Taaldiversiteit in het onderwijs: van meertalig onderwijs naar functioneel veeltalig leren [Linguistic diversity in education: from multilingual education, towards functional multilingual learning] In P. Van Avermaet, K. Van den Branden, & L. Heylen (Eds.), *Goed gegokt? Reflecties op twintig jaar gelijke-onderwijskansenbeleid in Vlaanderen* [Guessed good? Reflections on twenty years of equal opportunity policies in education in Flanders] (pp. 69–87). Antwerp, Belgium: Garant.

Singer, J. D. (1998). Using SAS PROC MIXED to fit multilevel models, hierarchical models, and individual growth models. *Journal of Educational and Behavioral Statistics, 23*(4), 323–355.

Strand, S. (1997). Pupil progress during key stage 1: A value added analysis of school effects. *British Educational Research Journal, 23*(4), 471–487.

Van den Bergh, L., Denessen, E., Hornstra, L., Voeten, M., & Holland, R. W. (2010). The implicit prejudiced attitudes of teachers: Relations to teacher expectations and the ethnic achievement gap. *American Educational Research Journal, 47*(2), 497–527.

Van der Slik, F., Driessen, G., & De Bot, K. (2006). Ethnic and socioeconomic class composition and language proficiency: a longitudinal multilevel examination in Dutch elementary schools. *European Sociological Review, 22*(3), 293–308.

Van Ewijk, R., & Sleegers, P. (2010). The effect of peer socioeconomic status on student achievement: A meta-analysis. *Educational Research Review, 5*(2), 134–150.

Van Houtte, M. (2003). Reproductietheorieën getoetst. De link tussen SES-compositie van de school en onderwijscultuur van leerkrachten en directie [Testing theories of reproduction: The link between the SES-composition of the school and the teaching culture of teachers and principals]. *Mens & Maatschappij, 78*(2), 119–143.

Van Houtte, M. (2004). Tracking effects on school achievement: A quantitative explanation in terms of the academic culture of school staff. *American Journal of Education, 110*(4), 354–388.

Van Houtte, M. (2011). So where's the teacher in school effects research? The impact of teachers' beliefs, culture, and behavior on equity and excellence in education. In K. Van den Branden, P. Van Avermaet, & M. Van Houtte (Eds.), *Equity and excellence in education: Towards maximal learning opportunities for all students* (pp. 75–95). New York, NY: Routledge.

Van Houtte, M., & Stevens, P.A.J. (2010). The culture of futility and its impact on study culture in technical/vocational schools in Belgium. *Oxford Review of Education, 36*(1), 23–43.

Demanet, J., & Van Houtte, M. (2012). Teachers' attitudes and students' opposition. School misconduct as a reaction to teachers' diminished effort and affect. *Teaching and Teacher Education, 28*(6), 860–869.

Van Maele, D., & Van Houtte, M. (2011). The quality of school life: Teacher-student trust relationships and the organizational school context. *Social Indicators Research, 100*(1), 85–100.

Wells, A. S. (1995). Reexamining social-science research on school-desegregation. Long-versus short-term effects. *Teachers College Record, 96*(4), 691–706.

Wineburg, S. S. (1987). The self-fulfillment of the self-fulfilling prophecy. *Educational Researcher, 16*(9), 28–37.

APPENDIX A: TOPIC LIST FOR TEACHERS AND PRINCIPALS

[*Instructions are written between brackets and put in italics*]

Introduction

[*Providing information about our research*]

— A lot of schools and teachers participate in this study
— Our general research focus is whether there are differences across schools

[*Explaining the interview procedure*]

— I will ask you a lot of school-related questions
— And I specifically want to know how *you* think about these issues
— There are no correct or wrong answers, your opinion matters

[*Explaining anonymity*]

— Your name and the name of the school will never be mentioned

[*Request to audio recording*]

— If it is ok with you, I will record this conversation

Background information

— How old are you?
— Since when have you taught?
— Have you always been a teacher in this school?
— Which grades do you teach? Specific courses?

Perceptions and beliefs about the school

— Are there any reasons why you chose to work in this school?
— When you started working here, what were your first thoughts about the school?
  • Have they changed over the years?
— Have you ever thought about working in another school? Why?

Perceptions and beliefs about this school

[*I know it's hard to make generalizations about all pupils, but if I may ask you some questions about the pupils in this school:*]

— If I was a complete stranger in a foreign country, how would you describe them to me?
— Do you think they achieve well? Why (not)?
  • Do you think there are differences among pupils from different social and ethnic backgrounds?
— What about their well-being?
  • Do you think there are differences among pupils from different social and ethnic backgrounds?
— Do you think they will be successful in high school? And later? Why (not)?
— Do you measure in this school the academic progress of your pupils?
— How would you evaluate their parental involvement?
  • Do you think there are many differences among parents from different social and ethnic backgrounds?

Perceptions and beliefs about teachers in this school

"What about teachers in this school?"
- — How would you describe them?
- — Do you think they are competent?
- — What about their well-being?
- — How would you describe your interpersonal relations with other teachers?
- — Do male and female teachers differ in teaching?

Does school make the difference?

- — What are the differences among schools? [*Write down the differences named by the teacher*]
- — And do [these differences] have an impact on the pupils? How and why?
- — How would you describe your most ideal school?
- — Which school factors [*named by the teacher*] contribute to academic achievement of pupils? Why and how?
- — Which school factors [*named by the teacher*] might influence the well-being of the pupils?

School composition

[*Only if the teacher did not already mention the ethnic school composition*]

In this school, there are x % [*look at quantitative data of schools*] nonnative pupils

- — What is your opinion about this?
- — Do you think that pupils' academic achievement is affected by this ethnic composition?
  - • Why (not)? Which pupils are most affected?
- — Do you think that pupils' well-being is affected by this ethnic composition?
  - • Why (not)? Which pupils are most affected?
- — Does the ethnic diversity or heterogeneity in a school make a difference?

[*Only if the teacher did not already mentioned the socioeconomic school composition:*]

In this school, there are x % [*look at quantitative data of schools*] working-class pupils

- — What is your opinion about this?
- — Do you think that pupils' academic achievement is affected by this socioeconomic composition?
  - • Why (not)?
  - • Which pupils are most influenced?
- — Do you think that pupils' well-being is affected by this socioeconomic composition?
  - • Why (not)?
  - • Which pupils are most influenced?

School sector

[*Only if the teacher did not talk about the school sector*]: This is a Catholic/state school.

- — What is your opinion about this?
- — Are there differences among Catholic and state schools?

Intercultural education

The official Flemish educational goals state that each school should provide intercultural education.

- — What is your understanding of intercultural education?
- — Do you think it is important for the pupils?
- — Can you give some examples?
- — What is the role of the school regarding the religious background of pupils?
- — What is the role of the school regarding the linguistic background of pupils?

Questions? Other comments? Thank you very much!

APPENDIX B: THE RESPONDENTS

Pseudo	School	Type	Age	Gender
Ann	White Triangle	Teacher	44	Female
Caroline	White Circle	Teacher	37	Female
Dimitri	White Triangle	Teacher	26	Male
Eric	Black Triangle	Teacher	30	Male
Hans	White Circle	Teacher	58	Male
Jaclyn	Black Triangle	Teacher	30	Female
Jef	White Triangle	Teacher	46	Male
Joris	White Triangle	Principal	49	Male
Katja	Black Circle	Teacher	45	Female
Katrien	Black Triangle	Principal	50	Female
Kelly	Black Circle	Teacher	26	Female
Koen	White Circle	Teacher	52	Male
Kristof	Black Circle	Teacher	32	Male
Laure	Black Square	Teacher	34	Female
Lise	White Circle	Teacher	47	Female
Maria	Black Square	Principal	30	Female
Mieke	White Circle	Teacher	38	Female
Nadia	Black Triangle	Teacher	37	Female
Patrick	White Circle	Principal	45	Male
Piet	White Triangle	Teacher	44	Male
Rik	Black Square	Teacher	27	Male
Sarah	Black Square	Teacher	29	Female
Saskia	Black Square	Teacher	30	Female
Simon	Black Circle	Teacher	56	Male
Sonja	Black Circle	Principal	50	Female
Tom	Black Circle	Teacher	55	Male

APPENDIX C: CODING FREQUENCIES AND DENSITY: SEPARATELY FOR BLACK[a] AND WHITE[b] SCHOOLS

Frequency: Percentage of interviews in which a code is used

Density: Percentage of coded sections in which a code is used

	Black Schools		White Schools	
	Frequency	Density	Frequency	Density
1. Professional history				
1.1. Background information	100%	5.6%	100%	4.1%
1.2. How & why this school	73%	4.2%	91%	4.4%
2. Perceptions and beliefs about this school				
2.1. Academic achievement	53%	4.2%	64%	3.3%
2.2. School buildings & material	0%	0.0%	55%	3.0%
2.3. Changes in school during time	33%	2.1%	55%	6.3%
2.4. Composition (general terms)	80%	7.0%	55%	2.6%
2.5. What others say about this school	20%	1.7%	0%	0.0%
2.6. Policy, leadership, & principal	13%	0.7%	55%	2.6%
2.7. Parents	53%	5.2%	73%	4.1%
2.8. Resegregation – Tracking	0%	0.0%	18%	0.7%
2.9. Size	0%	0.0%	45%	2.6%
2.10. Team and teachers general	40%	3.5%	64%	4.1%
2.11. (Impact of) teacher gender	53%	3.1%	91%	4.1%
2.12. Pupils' well-being	53%	3.5%	45%	3.0%
3. Composition				
3.1. (Impact of) ethnic composition				
3.1.1. Academic achievement	80%	4.2%	36%	1.8%
3.1.2. Ethnic heterogeneity	33%	1.7%	64%	4.8%
3.1.3. Language use and proficiency	85%	4.5%	73%	4.4%
3.1.4. Personal enrichment	73%	3.8%	55%	2.2%
3.1.5. Well-being	20%	1.0%	18%	0.7%
3.2. (Impact of) SES composition on				
3.2.1. Academic achievement	20%	1.4%	18%	1.1%
3.2.2. Language use and proficiency	20%	1.4%	9%	0.4%
3.2.3. Personal enrichment	20%	1.0%	27%	1.5%
3.2.4. Financial resources	40%	2.8%	27%	1.1%
3.3. (Impact of) academic composition	20%	1.7%	27%	1.5%
3.4. Challenges and problems	33%	2.1%	64%	4.1%
3.5. Teachability issues	47%	4.9%	73%	4.4%
3.6. Impact on teachers	40%	2.4%	27%	1.1%
3.7. Peer influence	33%	2.1%	36%	1.5%
4. Differences between schools				
4.1. Composition	27%	1.4%	55%	2.2%
4.2. Buildings & available material	7%	0.3%	36%	1.5%
4.3. Leadership & principal	20%	1.4%	18%	0.7%
4.4. Policy	53%	3.5%	27%	1.5%
4.5. Sector	40%	2.4%	82%	3.7%

4.6. Size	0%	0.0%	27%	1.1%
4.7. Team & teachers	53%	2.8%	9%	0.4%
5. Multicultural education				
5.1. Intercultural/ethnic education	67%	3.8%	55%	2.6%
5.2. Ethnicity (non-language-related)	33%	2.1%	73%	4.1%
5.3. Bilingual and mother tongue education	67%	3.5%	45%	2.2%
6. Community involvement	13%	0.7%	27%	1.5%
7. Extracurricular activities	13%	0.7%	27%	1.1%
8. Talks about our research project	27%	1.4%	36%	2.2%

[a] Black schools: Black Circle, Black Triangle, Black Square (*N* interviews: 15; *N* coded sections: 287)
[b] White schools: White Circle, White Triangle (N interviews: 11; N coded sections: 271)

APPENDIX D: SAMPLES OF CODING

Sample 1

Teacher: Koen

Used codes

3.1.3   Composition → (impact of) Ethnic composition à Language use and proficiency
3.4   Composition → Challenges and problems
3.5   Composition → Teachability issues
4.1   Differences between schools → Composition

Raw Data	Coding
Researcher: And what factors make schools different from each other?	4.1
Koen: It is difficult to tell because I don't know other schools, not well enough, I have never been a teacher elsewhere. But I can imagine that a school with another audience, let's say a school in * street, first and foremost, they've got a lot of foreign children, a lot of them barely speak the language. I have not experienced it, but when I think that in the * school there are Bulgarians and Slovenians that barely speak the language. I think it must be terribly difficult to be a teacher there and basically to teach something.	4.1 4.1 4.1 4.1, 3.1.3 4.1, 3.1.3, 3.4, 3.5 4.1, 3.1.3, 3.4, 3.5 4.1, 3.1.3, 3.4, 3.5 4.1, 3.4, 3.5

Sample 2

Teacher: Rik

Used codes

2.4   Perceptions and beliefs about this school → Composition (general terms)
2.6   Perceptions and beliefs about this school → Policy, leadership & principal
2.7   Perceptions and beliefs about this school → Parents
3.2.1   Composition → (impact of) SES composition → Academic achievement
3.2.2   Composition → (impact of) SES composition → Language use and proficiency
3.2.4   Composition → (impact of) SES composition → Financial resources
5.3   Multicultural education à Bilingual and mother tongue education

Raw Data	Coding
Researcher: We talked a lot about the ethnic composition of this school. But do you think that the socioeconomic composition also has an impact on school-related issues? I mean for instance, the educational background of the parents?	2.4
Rik: Which kind of school-related issues?	2.4
Researcher: Achievement, for instance.	2.4
Rik: Of the pupils? You mean, kids from low-educated parents?	2.4
Researcher: or high-educated richer parents	2.4
Rik: Yes, they have, like, they have more means. And they are also different at home. For example, these high-educated parents usually do also master the Dutch language very well. And at home, they also speak Dutch all the time. They have almost the same way of living as we do and they speak Dutch and everything. While other parents insist on speaking Turkish at home. So they have difficulties with the language at school, with the result that their academic performance is much lower than other pupils, right? So that is the reason why there are academic achievement differences. And this has a huge impact on all school-related issues.	3.2.1

2.7, 3.2.1

2.7, 3.2.1

2.7, 3.2.4

2.7, 3.2.2, 3.2.4 |
| Researcher: How about pupils' mother tongues in the school? | 2.7, 3.2.2 |

Raw Data	Coding
Rik: Normally, we forbid that, so it is not allowed to speak Turkish at school. But we see that when they are among each other, or when there are conflicts, that they quickly switch to the Turkish language. So we have to constantly watch over it, because even if they speak very quietly, we see that they trying to speak Turkish all the time.	2.7, 3.2.2
	2.7, 3.2.2
	2.7, 3.2.2
	3.2.1, 3.2.2
	3.2.1, 3.2.2
	3.2.1, 3.2.2
	3.2.1, 3.2.2
	2.6, 5.3
	2.6, 5.3
	2.6, 5.3
	2.6, 5.3
	2.6, 5.3
	2.6, 5.3

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