

Ethnic and Socioeconomic Class Composition and Language Proficiency: a Longitudinal Multilevel Examination in Dutch Elementary Schools

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This study tested whether elementary school pupils' language proficiency, and its development from grade 4 to 6, is affected by ethnic and socioeconomic school class composition. On average, pupils in school classes with high concentrations of ethnic minorities performed worse than pupils in classes with low concentrations of ethnic minorities. However, when percentage of employed mothers and degree of variation in the fathers' incomes were taken into account, the initial negative effect of ethnic minority concentration on language proficiency in grade 4 fell to a non-significant level. In addition, when in grade 6 the degree of variation in the fathers' incomes was taken into account, the initial negative effect of the percentage of ethnic minority children was reduced substantially. It seems that pupils' lower language proficiency is related more to the variation of the parental incomes in a classroom than to the presence of high proportions of pupils from ethnic minorities.

Introduction

The position of ethnic minorities in education is generally a major cause for concern because of their low performance levels, poor participation in higher education, truancy and discipline problems, and high dropout (Rossi and Montgomery, 1994; Gillborn, 1997; Reid, 1997). Considering that in Western countries education is crucial for obtaining employment and income, the improvement of the educational position of ethnic minorities may thus be seen as an important long-term goal. One important reason predisposing children from ethnic minorities to underachieve educationally compared with

children from the majority population appears to be their arrears in proficiency in the majority language (Tesser and Iedema, 2001). We will, therefore, concentrate on proficiency in the national language as a prime educational outcome of pupils at elementary schools. Our review of relevant literature will, however, include other outcomes regarding educational achievement as well. Our main goal is to ascertain the impact of the ethnic and socioeconomic composition of pupils' school classes on language proficiency, though we will also examine the effect of parental background on the language proficiency of individual children. To do so, we use a large-scale longitudinal data set, which includes

data on 5,835 children in 526 Dutch elementary school classes. The longitudinal character of the data allows us to study the progress in language proficiency, and to test which factors hamper or accelerate its development.

The Dutch Context

Dutch Educational Policy as Regards Migrant Children

The recent influx of migrants in Western countries has challenged governments to find ways to accommodate this new situation. European countries meet this challenge in a variety of ways, depending on the political and institutional contexts and the broader socio-economic structures (for an overview, see: Bauer *et al.*, 2000). In the Netherlands, educational policies relating to ethnic minorities have a relatively short history and have repeatedly been subject to change. Four distinct phases can be discerned (Driessen, 2000).

The period before 1980 was characterized by a two-track approach, based on the idea that many migrants (in particular the so-called 'guest workers') would only stay for a short period of time in the Netherlands. Efforts were directed simultaneously toward the integration of migrant children into the Dutch education system and the preparation for their return to their home country. In classroom practice this meant that these children received instruction in their home language (bilingual education) as well as extra tutoring in Dutch.

Around 1980 the government abandoned the idea that immigrants would be returning to their home countries. From that moment on, education was intended to prepare immigrants to become full members of Dutch society, thereby explicitly taking into account their cultural background. A number of educational policies, specifically targeted at cultural minority groups, were designed. Schools with immigrant children, for example, were given additional resources.

During the third phase, beginning in 1985, policies relating to ethnic minorities and Dutch working-class children were integrated in the Educational Priority Policy program (EPP). The goal of the EPP was to reduce these children's disadvantages by giving additional staff on the basis of the socio-ethnic composition of the school population. In addition, Intercultural Education was seen as an important means of giving effect to acculturation of migrants.

At the beginning of the 1990s, it became clear that, though in a broad sense some progress in the educational position of ethnic minority children was observed,

their performance nevertheless stayed far behind that of native Dutch children. This observation has urged the government to opt for a new Educational Disadvantage Policy (EDP), with the key concepts: decentralization, deregulation and increased autonomy for municipalities. In the same period, however, a growing discontentment in large parts of the Dutch population has occurred because of the rising influx of economic immigrants from Turkey and Morocco in particular and large numbers of asylum seekers in general (OECD, 1998). This has resulted in the call for a policy directed at assimilation instead of acculturation. The Dutch government has responded to this call in a variety of ways, for example by making training in Dutch language compulsory for newly-arrived immigrants and by abolishing bilingual education at schools.

Migrant Influx in the Netherlands

Various groups of immigrants have come to the Netherlands since World War II, mainly for political and economic reasons. These immigrants can roughly be divided into four categories: (i) migrants from former Dutch colonies (Indonesia, Surinam and the Netherlands Antilles), (ii) guest workers from the Mediterranean countries (e.g., Italy, Spain, Turkey and Morocco), who predominantly came to the Netherlands during the 1960s, (iii) a more recent influx of refugees from Eastern Europe, Africa and the Middle East, lately especially from Afghanistan, Iran, Iraq, Somalia and former Yugoslavia, and (iv) migrants from Western countries such as Belgium, Germany, the UK and the USA.

Home Language Used in the Family

It is debatable to what extent the term 'migrant' or 'ethnic minority' still applies to all of these categories, and up to which generation (Broeder and Extra, 1997). Applying 'country of birth' as the criterion, in 2005 the largest ethnic minority groups in the Netherlands are of Turkish, Surinamese, Moroccan, and Antillean origin, with 358,000, 328,000, and 315,000 and 130,000 people, respectively, out of a total Dutch population of 16.5 million (Garssen and Zorlu, 2005). In the present study, however, we opt for the criterion 'home language used in the family', since, as regards children's language proficiency, home language is theoretically more meaningful than, for example, country of birth. Applying this criterion would imply, however, that as far as their home language is Dutch, migrants from the former Dutch colonies, such as Indonesia and Surinam, would not be considered as ethnic minorities in this study. Since

Tesser and Iedema (2001) have found that the language proficiency of children from these groups of immigrants is lower than that from native Dutch children, we deem it important to identify children of parents originating from these former Dutch colonies. Following Marks (2005), we, therefore, additionally made a distinction between Dutch-speaking pupils with native Dutch parents and Dutch-speaking pupils with parents born in the former colonies Surinam or Indonesia.

Resources and Educational Outcomes

Parental Resources at the Pupil Level

Children's educational outcomes may be affected by parental characteristics such as education, employment, income and ethnicity. According to Bourdieu (1986), and Coleman (1988), parent's education, income, and occupation can be seen as proxies for cultural patterns of behaviour and social lifestyle characteristics that children acquire from their parents. In addition, the social capital that parents transmit to their children in terms of norms, values, and attitudes are also recognized as important predictors of school achievement. Given that the dominant (native) culture lies at the core of the educational curriculum, it is often difficult for children from the lower social strata, and from ethnic minorities, to grasp the material being taught. The effects of parental socioeconomic characteristics on pupils' educational outcomes are well documented (Blau and Duncan, 1967; Hauser and Mossel, 1985), and these effects are particularly strong during early school phases (Shavit and Blossfeld, 1993; Sirin, 2005).

Ethnicity has repeatedly been found to affect children's educational outcomes, as well. The effect of ethnicity can, however, be adverse as well as beneficial. Without the intent of being exhaustive, several explanations for these effects have been put to the fore. These explanations concern, for example, the immigrants' socioeconomic position, and their cultural values and patterns of behaviour. First, the immigrants' socioeconomic position, in terms of education, occupation and income, may explain the educational achievement of their children. Schnepf (2004), for example, used, amongst other databases, the Programme of International Reading Literacy Study (PIRLS) database, and has found that in France, Germany, The Netherlands and Sweden (countries with a rather large influx of asylum seekers or 'guest workers'), the discrepancy between

native and immigrant pupils' reading comprehension is substantive and can partly, but not entirely, be explained by differences in parental socioeconomic background. Unfortunately, the PIRLS database does not contain information on immigrants' country of birth, implying that origin effects cannot be investigated unambiguously. And, since the PIRLS database is cross-sectional, pupils' language development cannot be investigated either. The database used in the present study does not have these shortcomings. Second, sociocultural factors may explain differences along ethnic lines too. Depending on the social and cultural capital they have brought from their home country, immigrants may respond differently to their new environment. Chinese and Indochinese immigrants' children, for example, perform better than children from other ethnic minorities (Tesser and Iedema, 2001), not just in the Netherlands but in other host countries as well. Bankston, Caldas and Zhou (1997), for example, have concluded that what facilitates Chinese and Indochinese students' academic success, is their parents' strong endorsement of education and achievement, and the children's adherence to their immigrant families. Apparently, the accommodation without assimilation of these immigrants' children is largely independent of the national context. Turkish and Moroccan immigrants, however, present a different case. Moroccan, and Turkish pupils in particular, score lower on Dutch proficiency tests than native Dutch children (Driessen *et al.*, 2002). Because Turkish and Moroccan immigrants are comparable in terms of a lack of formal education and employment, sociocultural factors have been proposed to explain the emergent differences between Moroccan and Turkish pupils with regards to Dutch language proficiency. It has been found that Turkish language vitality is higher than Moroccan language vitality (Broeder and Extra, 1995). In addition, Turkish immigrants use their mother tongue more often (Tribalat, 1995; Driessen, 2004), and maintain tighter family and community relationships than Moroccans (Phalet and Schönplflug, 2001). Apparently, these factors may explain why Moroccan pupils are more proficient in Dutch than Turkish pupils.

Language Development

Though differences in pupils' language proficiency are well documented in the literature, little is known about the *development* of their language proficiency and which factors hamper or accelerate it. Based on the seminal work of Stanovich (1986), two models on language development can be put forward: The 'reproduction

model' and the 'transmission model'. The transmission model presumes that, as compared to children from poor families, children from affluent families have a head start, which they will retain during their education. The reproduction model presumes the same, but in contrast to the transmission model, it assumes that during their education, the initial discrepancy between children from families with large parental resources, and poor children tends to increase (the so-called Matthew effect). Evidence has been found for the partial validity of both models (Tesser and Iedema, 2001; Driessen *et al.*, 2003).

Parental Resources at the Classroom Level

Next to the effect of parental resources on own children, parental resources may also affect the educational attainment of a child's schoolmates. Aggregated parental characteristics may, however, exert their influence in at least two different ways. On the one hand, aggregated parental characteristics may be conceived of as proxies for neighbourhood effects. Interpreting aggregated parental effects as neighbourhood effects may only be valid when children from a distressed neighbourhood all attend the same school. This may be true in, for example, the USA, but does not necessarily apply to the Dutch context. In the Netherlands, parents are free to choose which school their child attends (Driessen and Van der Slik, 2001). Of course, the parents' choice will be influenced by a school's proximity, but in the Netherlands, variation in school choice is common, be it as a result of religious or educational preferences. As a result, in the Netherlands, children from a variety of neighbourhoods may attend the same school, which makes it difficult to interpret aggregated parental characteristics as neighbourhood indicators. It is for this reason that we see the effect of aggregated parental characteristics primarily as a classroom effect.

There are several possible explanations for the occurrence of class composition effects. Caldas and Bankston (1997), and Kahlenberg (2001), for example, point to the importance of peer groups and argue that schoolmates create their own social context, which has a strong influence on individual academic achievement, independent of any individual background. Shared beliefs, habits, and peer pressure are supposed to be relevant factors in this process. Gardner and Raudenbush (1991) suggest that a concentration of deprived families in a neighborhood will generate a social climate characterized by a general sense of hopelessness and futility. It is believed that such a social climate will have an additional adverse effect on children's

school performance. We contend that aggregated parental background characteristics, like average parental income, contribute to the classroom climate and the shape of peer pressure, though perhaps not uniquely.

In addition to *average* parental income or education, however, *variation* of parental income and educational level may be expected to have an effect too. Whereas low average income, high unemployment rates and low average educational level are supposed to create a school climate dominated by low expectations with regard to a child's educational achievements (Gardner and Raudenbush, 1991; Bankston and Caldas, 1996), differentiation in incomes and parental education within the classroom may boost the individual achievements of all pupils. In such an environment, pupils are confronted not only with their own social environment and accompanying expectations, but, indirectly, in the course of their interactions with schoolmates, with expectations prevailing in other social milieus as well. As a result, they may put into perspective the norms, values and expectations prevailing in their parents' social background (Mannheim, 1969); affluent pupils may serve as role models for pupils from poor families (Kahlenberg, 2001). Putting expectations of one's own social milieu into perspective, might, however, not be beneficial to solely children from families with limited parental resources: interacting socially with pupils from poor families may result in the realization that being born into an affluent family is a privilege far from self-evident. This insight might enhance the perseverance of children from affluent families as well. In short: children in classes that are heterogeneous in terms of parental resources are expected to perform better than children in classes that are homogeneous in terms of parental resources.

Next to socioeconomic composition, it has been suggested that differences in socioethnic composition affect peer interactions and the teaching and learning climate in the school Rumberger and Willms (1992). These authors found that family and individual circumstances (e.g., lower levels of parental education, limited proficiency in English) explain very little of the achievement arrears of African-Americans, and these authors suggest that the differences in achievement might be attributable to cultural differences ('oppositional culture') in how African-Americans relate to schooling and how schooling relates to them. This might partly explain why schools with high concentrations of African-Americans lag behind (Coleman *et al.*, 1966; Rumberger and Willms, 1992).

Ethnic or Socioeconomic Composition Effects

A serious limitation of most studies regarding ethnic and socioeconomic composition effects is the virtual impossibility of disentangling their independent effects, due to their high intercorrelations (Bankston and Caldas, 1997). Though highly correlated, socioeconomic status and race are by no means identical, and it may be hypothesized that it is not just the ethnic or racial composition of school classes that will affect pupils' educational attainment. Other relevant compositional characteristics, for example, average parental education level, and average parental income, may exert their effect as well (Jencks and Mayer, 1990; Rumberger and Willms, 1992; Caldas and Bankston, 1997; Sirin, 2005). Moreover, and in line with the Coleman Report (Coleman *et al.*, 1966) the test that has to be made (and can be made in the present study), is whether ethnic *or* socioeconomic composition accounts for adverse pupil outcomes.

Hypotheses

Based on the foregoing, we can formulate hypotheses at both the 'pupil level' and the 'classroom level'. The longitudinal character of the data being used, enabled us also to test hypotheses about the development of Dutch language proficiency. The data include information on language proficiency in grades 4 and 6, and family background such as parents' education, income and employment.

Hypotheses at the Pupil Level

1. The home language hypotheses

We expect to find pupils' language proficiency in Dutch in grade 4 to be negatively associated with home language other than Dutch. To be more specific, we hypothesize that Turkish-speaking pupils perform lowest, and Dutch-speaking pupils score highest on Dutch proficiency, while pupils of Moroccan descent, pupils speaking other non-Dutch languages, and Dutch-speaking pupils with parents originating from former Dutch colonies fall in between. In addition, it is hypothesized that as regards Dutch proficiency in grade 6, Turkish pupils lag even further behind Dutch children (reproduction), while Moroccan pupils, the remaining non-Dutch speaking children and Dutch-speaking pupils with parents from former colonies do not

(transmission), when language proficiency in grade 4 is taken into account.

2. The socioeconomic background hypotheses

Pupils' proficiency in Dutch in grade 4 is expected to be positively associated with: (1a) father's employment, (2a) mother's employment, (3a) father's educational level, (4a) mother's educational level, (5a) father's income, and (6a) mother's income. In addition, it is hypothesized that, when language proficiency in grade 4 is taken into account, pupils' Dutch proficiency in grade 6 is positively associated with: (1b) father's employment, (2b) mother's employment, (3b) father's educational level, (4b) mother's educational level, (5b) father's income, and (6b) mother's income (reproduction).

Hypotheses at the Classroom Level

A. The ethnic composition hypotheses

We hypothesize that language proficiency in Dutch in grade 4, and in grade 6 when proficiency in grade 4 is taken into account, is negatively associated with percentage of pupils whose parents speak a language other than Dutch in the home.

B. The socioeconomic composition hypotheses

Furthermore, we expect to find: (B1) percentage of employed fathers, (B2) percentage of employed mothers, (B3) average of fathers' educational level, (B4) variation of fathers' educational level, (B5) average of mothers' educational level, (B6) variation of mothers' educational level, (B7) average of fathers' income, (B8) variation of fathers' income, (B9) average of mothers' income and, (B10) variation of mothers' income, to be positively related to language proficiency in grade 4, and in grade 6 when proficiency in grade 4 is taken into account.

C. The ethnic versus socioeconomic composition hypotheses

We expect to find that the negative effect of percentage of pupils with a non-Dutch home language on language proficiency in Dutch in grades 4 and 6 will disappear once classroom effects of employment, education, and income are taken into account. These hypotheses will be denoted as C1 through to C10.

Finally, we will test which combination of socioeconomic composition effects, added to the ethnic composition effect, best represent the data. We incorporate these outcomes into the final models.

Method

Sample

The data we use to test these hypotheses were collected in the Dutch national cohort study 'Primair Onderwijs' (Elementary Education: PRIMA). This study began in the 1994/1995 school year, with an initial data-collection round involving approximately 60,000 pupils in grades 2, 4, 6 and 8 of more than 600 elementary schools (about 10 per cent of the elementary schools in the Netherlands). The PRIMA data were collected from pupils and their parents, schools, school managers, and teachers, using a variety of research instruments. For more details on the design and data collection methods, see Jungbluth *et al.* (1996).

In the 1996/1997 school year, the PRIMA study was repeated, again using data from about 60,000 pupils. The design of the study was partly longitudinal. Pupils who had participated in the 1994/1995 study, now in grades 4, 6 and 8, were re-tested. Schools that did not participate in the 1996/1997 study were replaced by schools similar to them. Roeleveld and Portengen (1998) have found that withdrawal of schools was not selective.

In the present study we use the data on pupils who were in grade 4 in 1994/1995, and who were in grade 6 two years later in 1996/1997. In 1994/1995, 14,898 grade 4 pupils were tested. In addition, their parents were asked to fill out a questionnaire about various background variables, such as education, income, and home language. In total, 9,996 parents did actually do so. We tested whether the response rate of approximately 67 per cent did affect the representativeness of the sample as regards the test results of their children. We found that the test scores on language proficiency of the pupils whose parents returned the questionnaire were substantially higher than the scores of pupils whose parents did not return the questionnaire ($T = -25.83$). Using information from school managers, Driessen and Haanstra (1996) found indications that ethnic minority parents, and lower-educated parents in general, were less likely to return the questionnaires.

We used the information provided by the parents to construct measures at the classroom level. Some parents, however, did not answer all the questions (for example, in case one of the parents was absent due to a divorce). In order to not exclude their children for the analyses, whenever possible, we substituted mean scores for missing scores. Following Driessen *et al.* (1999), we replaced missing values by taking into account the home language, occupational status, and educational level of the

parents involved. In order to check whether substituting by these group means does alter the outcomes, we constructed dummies for the variables with missing scores. Preliminary regression analyses, using information on 9,996 pupils, revealed that, as far as the dummies for the missing scores were concerned, none of the dummies would have a significant effect. Given these outcomes, we may be confident that the replacement procedure has not resulted in biased effect estimates (Jones, 1996).

As already noted, we use the data on pupils who were in grade 4 in 1994/1995 and in grade 6 in 1996/1997. This restricts the sample to 5,835 pupils and their parents from 526 classes at 453 schools. The main reason for this reduction was that a number of schools withdrew from the 1996/1997 study; because of this, 2,633 pupils could not participate. Another reason was individual withdrawal for various reasons; there were 1,528 such pupils. Roeleveld and Vierke (2003) found that moving to another elementary school (parents' geographical mobility) was, in three out of four cases, the primary reason for individual withdrawal.

In summary, both as a result of attrition (withdrawal by schools and individual withdrawal by pupils), and as a result of selective non-response by the parents, pupils with lower scores on language proficiency or pupils from disadvantaged families were less likely to be included in the final longitudinal sample. Additional analyses, using the 1994 database only ($n = 9,996$), provided evidence, however, that withdrawal by schools and withdrawal by pupils does not appear to have had any serious consequences: the effect estimates using the larger sample, were very similar to those reported in this study.

Most previous research has focused on high schools, yet in earlier grades the rates of cognitive growth are likely to be much faster and the compositional effects can be expected to be much greater (Jencks and Mayer, 1990; Entwisle and Alexander, 1994).

Language Proficiency

The language proficiency tests we used, were developed by CITO (Dutch National Institute for Educational Measurement). The tests give an indication of general proficiency in Dutch, and consist of 60 and 65 multiple-choice items for grades 4 and 6, respectively. The reliability of the tests ($K-R 20$) is around 0.85 (Driessen *et al.*, 1994).

Because the tests for grades 4 and 6 largely differ in content, they cannot be compared in a straightforward manner. They were compared by applying a One-Parameter

Logistic Model analysis, a kind of Rasch analysis (Verhelst *et al.*, 1995). A calibration procedure was used to rescale the items of the two tests in such a way that they constitute a one-dimensional metric proficiency scale, enabling the pupils' progress in language proficiency to be measured (Vierke, 1995).

Pupil Level Predictors

Home language in the family. Four dummy variables were created to indicate the home language in the family. If native parents reported that Dutch (or a Dutch dialect) was the main language used in the family they were coded as 'Dutch'. If parents born in the former Dutch colonies Indonesia or Surinam reported that Dutch (or a Dutch dialect) was the main language used in the family, they were coded as 'Dutch from former colonies'. In case parents were divorced or information about one parent's country of birth was missing, country of birth of the remaining parent was used. Parents whose main language was Turkish (or Kurdish) were coded as 'Turkish'. Parents who indicated that Moroccan (or Berber) was the language mostly spoken in the family were coded as 'Moroccan'. Those who referred to another non-Dutch home language were coded as 'Other'. Those speaking Dutch will be treated as the reference category in the analyses.

Father's and mother's employment. Fathers and mothers were asked about their daily activities. Parents who reported that they were unemployed at the time of the interview were coded as (0). Fathers and mothers who were either employed or who were not in a need for a paid job (housewives/housemen, students, and those involved in volunteer work) were coded as (1).

Father's and mother's educational level. Both parents were asked about their highest completed education. Education was coded as: elementary or less (1), lower vocational (2), intermediate secondary (3), intermediate vocational (4), upper secondary (5), higher vocational (6), and university (7).

Father's and mother's income. Both spouses were asked about their monthly net income. Net income is presented in Euros divided by 1,000.

Pupil is a girl. The gender of the pupil was included as a control variable, because it has repeatedly been found that girls perform better than boys as regard to language proficiency, particularly at younger ages (Bae *et al.*, 2001).

Class Level Predictors

Percentage of children from families in which the home language is not Dutch. Percentage of children per class

whose parents reported to speak Turkish (or Kurdish), Moroccan (or Berber) or another non-Dutch language.

Percentage of employed fathers and mothers. Percentage of fathers and mothers per class who were employed or who were not in a need for a paid job at the time of the interview.

Average of fathers' and mothers' educational level. Levels of fathers' and mothers' education were aggregated per class.

Variation of fathers' and mothers' educational level. Variation in fathers' and mothers' education per class.

Average of fathers' and mothers' income. Fathers' and mothers' income have been aggregated per class.

Variation of fathers' and mothers' income. Variation in fathers' and mothers' income per class.

Analyses

Given the hierarchical nature of the PRIMA-data (pupils nested within school classes) multilevel analysis is appropriate (Snijders and Bosker, 1999). We used MLwiN 2.0 (Rasbash *et al.*, 2000). First, starting from a Null Model, we tested whether multilevel analysis would be meaningful. We first applied a three-level model (pupils within school classes within schools). Not unexpectedly, however, variation between school classes, though significant, was rather small because 86 per cent of the schools are represented by just one school class ($VAR = 82.08$, $SE = 31.37$). We, therefore, decided to restrict ourselves to a two-level model (pupils within school classes). To do so, we compared within-school class variation with between-school class variation with the dependent variables 'Language proficiency in grade 4', and 'Language proficiency in grade 6'. Multilevel analysis did indeed appear to be appropriate. For language proficiency in grade 4, we found a school class correlation of 0.29, while the correlation with regard to grade 6 was 0.18, implying that respectively 29 per cent and 18 per cent of the variation in proficiency scores was due to between-class variation. This is considered substantial. Second, we added pupil level predictor variables to these null models in order to test the accompanying pupil-level hypotheses. Next, we added class level variables to these baseline models in order to test the classroom-level hypotheses. A given model is considered to have a better fit than a preceding, less complex model if the difference in the standard log-likelihood ratio is at least 3.84, against one degree of freedom. Before we present the outcomes of the multilevel analyses, however, we will describe the sample.

Results

Descriptive Analyses

Pupils

The very first row of Table 1 shows that Turkish-speaking families constituted the largest minority group, followed by families from Moroccan descent. Other non-Dutch speaking families outnumbered Moroccan speakers, but they consisted of a variety of home languages. Dutch-speaking families originating from former Dutch colonies were the smallest group. Approximately 16 per cent of the families with children in grade 4 were of foreign descent. Girls and boys were equally dispersed.

Of the fathers, 80 per cent were employed in 1994/1995, while 41 per cent of the mothers had a paid job. There were large differences between the diverse population segments, however. Fathers of foreign origin, including those from former Dutch colonies, were less likely to be employed than Dutch fathers. Ethnographic differences like these were found in virtually all the background variables included in the present study. The figures on labour participation once more underline that, on average, minorities represent part of the lower social strata in Dutch society. Though these outcomes corroborate the findings of Bauer *et al.* (2000) that the Netherlands is one of the countries with the lowest rate of immigrant labour force assimilation in Europe, it has to be stipulated that the lack of immigrant labour participation is apparently not restricted to asylum seekers in the Netherlands, as Bauer *et al.* (2000) assume.

As regards language proficiency, a similar picture emerges: on average Turkish-speaking pupils had the lowest language proficiency scores, while Dutch-speaking pupils had the highest. Though no less disturbing, we nevertheless would like to emphasize that, approximately 16 per cent of ethnic minority pupils scored higher than the average Dutch-speaking child in grades 4 and 6.

School classes

Table 2 provides a general description of the compositional characteristics of the school classes. On average, 18 per cent of the pupils in grade 4 were non-Dutch. There are large variations between classes, however ($SD = 25.46$). Minority students make up over 50 per cent at the schools in the four biggest Dutch cities (Amsterdam, Rotterdam, The Hague, Utrecht).

As regards average parental unemployment, education, and income, it can be noted that the mean school class values vary considerably. Interestingly, classes do not appear to be homogeneous in these parental

resources. Within a class, the variation in fathers' incomes, for example, is on average 0.34, but may vary between 0.00 and 0.70. This implies that an average school class in which the mean of the fathers' monthly income is €1,230, may be quite homogeneous with regard to fathers' income, but on the other hand, may also be rather heterogeneous regarding fathers' income (with father's monthly net income varying between €900, i.e., approximately the minimum net income in the Netherlands, and €1,900).

Model Testing

As can be seen in Table 3, 23 models fit better, than earlier preceding, more parsimonious models ($P < 0.05$ or less). Because there are so many model improvements, we will discuss only those that are most relevant. The outcomes of these analyses will be discussed in greater detail in the following section.

Hypotheses Testing, Language Proficiency in Grade 4

Table 4, first column under the heading 'Baseline Model', shows that home language has a profound effect on language proficiency in grade 4. In particular, Turkish, Moroccan, and other non-Dutch speaking children performed worse than Dutch-speaking children. These differences are substantial: Turkish-speaking pupils, for example, lagged almost one standard deviation behind Dutch-speaking children (cf. Table 1). The language proficiency of Dutch-speaking pupils whose parents originated from former Dutch colonies came rather close to the proficiency of native Dutch pupils (its effect becomes insignificant, once class-level predictors were introduced, see Table 4). Unique contributions to the explanation of a pupil's language proficiency are provided by father's (but not mother's) employment and income, and mother's education more than father's education, indicating that the influence of parental resources stretches beyond the borders of ethnicity as measured by home language. Finally, girls performed better than boys.

In the second column of Table 4, under the heading 'Model A', it can be observed that the class level variable 'percentage of non-Dutch pupils per class' has the expected negative impact on a pupil's language proficiency. Clearly, the ethnic-composition hypothesis is supported by these data. The effect of ethnic composition was found to be -0.16 ($P < 0.001$). This implies that compared with classes with no pupils of foreign descent

Table 1 Means and standard deviations (SD) of the total sample of pupils, and by home language

	Total		Dutch-speaking		Turkish-speaking		Moroccan-speaking		Other Non-Dutch speaking ^a		Dutch-speaking (former colonies) ^b	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Father employed (=1)	0.80	0.40	0.86	0.34	0.49	0.50	0.32	0.47	0.49	0.50	0.48	0.50
Mother employed (=1)	0.41	0.49	0.45	0.50	0.20	0.40	0.10	0.30	0.27	0.45	0.42	0.49
Father's education (1-7)	3.49	1.83	3.68	1.80	2.12	1.43	1.65	1.16	3.06	1.80	3.48	1.60
Mother's education (1-7)	3.24	1.67	3.45	1.62	1.66	1.19	1.64	1.19	2.63	1.60	3.02	1.38
Father's income €/1000	1.29	0.44	1.36	0.42	0.90	0.29	0.84	0.27	0.94	0.37	1.13	0.42
Mother's income €/1000	0.50	0.30	0.50	0.31	0.48	0.23	0.42	0.16	0.50	0.22	0.63	0.33
Pupil is girl (=1)	0.49	0.50	0.49	0.50	0.52	0.50	0.53	0.50	0.44	0.50	0.54	0.50
Language proficiency, grade 4	1031	37	1036	35	988	28	1000	32	1008	34	1026	34
Language proficiency, grade 6	1079	35	1084	34	1043	26	1057	28	1061	30	1074	30

^aOther non-Dutch home languages include languages from Asian and African countries (asylum seekers) (48 per cent), Surinam, the Antilles or Indonesia (32 per cent), China (13 per cent), South European (7 per cent).

^bDutch-speaking from former Dutch colonies include pupils whose parents were born in Surinam (57 per cent) or Indonesia (43 per cent).

Table 2 Means and standard deviations (SD) of the compositional characteristics of the school classes

	<i>n</i> = 526 Classes	
	Mean	SD
Percentage of non-Dutch students ^a	17.54	25.46
Percentage of employed fathers	74.42	21.68
Percentage of employed mothers	38.30	19.42
Average of fathers' education	3.30	1.02
Variation of fathers' education	1.50	0.46
Average of mothers' education	3.06	0.94
Variation of mothers' education	1.40	0.41
Average of fathers' income €/1000	1.23	0.26
Variation of fathers' income €/1000	0.34	0.13
Average of mothers' income €/1000	0.50	0.12
Variation of mothers' income €/1000	0.25	0.15

^aIn 45 per cent of the classes no non-Dutch students are present

(‘white classes’), the average language score of classes solely composed of pupils from ethnic minorities (‘black classes’) is 16 points lower. This is approximately half a standard deviation, and may therefore be considered substantial. However, the outcomes of the Models C2, C7 and C8 in Table 4, representing the socioeconomic-versus-ethnic-composition hypotheses, make it necessary to qualify this conclusion: taking into account ‘average income of fathers’ (Model C7) reduces the effect of ethnic composition to non-significance, while adding ‘percentage of unemployed mothers’ (Model C2), or ‘variation of fathers’ income’ (Model C8) weakens its effect substantially. Obviously, ethnic composition is neither the sole school class level factor which affects pupil’s language proficiency negatively, nor is it the most important one. This is exemplified by the outcomes of the Final Model (Table 4, last column), which was chosen on the base of significant improvement of fit.¹ Rather than the home language of a pupil’s classmates, it is the variation in the income of the peers’ fathers and the degree to which the peers’ mothers are employed that affect a pupil’s language proficiency in grade 4 at class-level. Both variation in the fathers’ income and the mothers’ employment are positively associated with a pupil’s language proficiency in grade 4. As already noted, 29 per cent of the variance in the language proficiency scores in grade 4 occurred at the school level, and 71 per cent at the pupil level. It can be seen in the last rows of Table 4 that, as compared with the Null Model, the Baseline Model explained 46.5 per cent at the class level, and about 9 per cent at the pupil level. Including ethnic composition (Model A) added another 3.3 per cent

at the class level, while the inclusion of variation of fathers’ income (Model C8) and mothers’ employment (Final Model), respectively, added an additional 5.0 per cent and 1.2 per cent to the explanation at the school class level.

Hypotheses Testing, Language Proficiency in Grade 6

The Baseline Model in Table 5, represents the pupil level effects on language proficiency in grade 6. It can be seen that the scores of Turkish and Other non-Dutch pupils on language proficiency are lower than those of Dutch pupils. Keep in mind that in the models presented, language proficiency in grade 4 has already been taken into account and, as expected, this effect is highly significant (0.38, $P < 0.0001$). Thus, the negative effect for Turkish and Other non-Dutch speaking pupils implies that they have fallen even further behind the Dutch-speaking pupils (reproduction or the Matthew effect). This does not apply to Moroccan-speaking pupils and Dutch-speaking pupils from non-native descent, however: though they lag behind Dutch-speaking pupils in grade 4 (see Table 4), their relative distance behind Dutch children has not increased (transmission) (the effects of the dummy variables that identify Moroccan pupils and Dutch-speaking pupils of parents born in Surinam or Indonesia, are not significant). In addition, parents’ education, father’s income, and being a girl continue to have positive effects on language proficiency in grade 6, indicating that the differences in language proficiency, that occurred in grade 4 between the lower and higher social classes, and between boys and girls have increased.

Model A represents the ethnic-composition hypothesis, but now for grade 6. The percentage of non-Dutch children shows a negative effect in grade 6 as well. However, variation of fathers’ income (Model B8) shows a significant effect, too. School classes of pupils whose parents have a wide range in income perform better than classes of pupils whose parents’ income falls within a small range.

Model C8 represents the Final Model for proficiency in grade 6. It shows that the initial negative effect of the percentage of non-Dutch children in grade 6 is again reduced when the differentiation in the peers’ fathers’ incomes is taken into account. It seems that the heterogeneity in parental income in a school class mitigates the negative effect of high concentrations of pupils from ethnic minorities on pupils’ lower school achievement levels. Eighteen per cent of the variance in the language proficiency scores in grade 6 occurred at the school class level and 82 per cent at the pupil level. The last rows of

Table 3 Goodness-of-fit statistics for nested multi-level models of language proficiency

	Language proficiency in Grade 4			Language proficiency in Grade 6, taking proficiency in Grade 4 into account		
	D.F.	Diff. – 2L ²	P	D.F.	Diff. – 2L ²	P
Null Model ^a	3	–	–	3	–	–
Baseline Model ^b	14	745	<0.001	15	1837	<0.001
Model A ^c	15	18	<0.001	16	6	<0.05
Model B1 ^c	15	18	<0.001	16	3	n.s.
Model B2 ^c	15	24	<0.001	16	0	n.s.
Model B3 ^c	15	16	<0.001	16	5	<0.05
Model B4 ^c	15	6	<0.05	16	0	n.s.
Model B5 ^c	15	5	<0.05	16	5	<0.05
Model B6 ^c	15	2	n.s.	16	3	n.s.
Model B7 ^c	15	28	<0.001	16	4	<0.05
Model B8 ^c	15	28	<0.001	16	7	<0.01
Model B9 ^c	15	3	n.s.	16	2	n.s.
Model B10 ^c	15	7	<0.01	16	1	n.s.
Model C1 ^d	16	4	<0.05	17	0	n.s.
Model C2 ^d	16	11	<0.001	17	2	n.s.
Model C3 ^d	16	5	<0.05	17	2	n.s.
Model C4 ^d	16	3	n.s.	17	0	n.s.
Model C5 ^d	16	0	n.s.	17	1	n.s.
Model C6 ^d	16	0	n.s.	17	2	n.s.
Model C7 ^d	16	12	<0.001	17	1	n.s.
Model C8 ^d	16	18	<0.001	17	5	<0.05
Model C9 ^d	16	2	n.s.	17	2	n.s.
Model C10 ^d	16	3	n.s.	17	1	n.s.
Final Model ^e	17	8	<0.01	–	–	–
Final Model (=Model C8) ^d	–	–	–	17	5	<0.05

^aLog-likelihood ratio for the null model for proficiency in grade 4: $-2L^2 = 57,780.61$; log-likelihood ratio for the null model for proficiency in grade 6: $-2L^2 = 57,598.31$

^bCompared with Null Model

^cCompared with Baseline Model

^dCompared with Model A

^eCompared with Model C8

n.s.: not significant

Table 5 reveal that, as compared with the Null Model, the Baseline Model explained 67 per cent at the class level, and about 24 per cent at the pupil level, but remember that language proficiency in grade 4 is already accounted for. Including ethnic composition (Model A) added another 1.5 per cent at the class level, while the inclusion of variation of fathers' income (Model C8), added an additional 1 per cent to the explanation at the school class level.

Discussion

Despite their differences, Europeans and Americans share the belief that they live in free countries, and therefore

all citizens should have equal opportunities. In his book, *All Together Now*, Richard Kahlenberg articulates this belief by presenting a powerful argument to reallocate pupils and students from deprived neighbourhoods into common schools with at least fifty per cent of children from middle-class families. In that case, more variation in pupils' background is introduced, and middle-class pupils can serve as role models for children from less affluent families, while at the same time the educational outcomes and aspirations of middle-class pupils remain unaffected by school class composition. The results of our study support Kahlenberg's position, at least for the Netherlands. At the elementary school class level we found that ethnic minority concentration (as measured by home language) had a negative effect on proficiency

Table 4 Parameters of selected multi-level models for language proficiency in Grade 4 (standard errors in parentheses)

Fixed parts	Baseline Model	Model A	Model C2	Model C7	Model C8	Final Model
Pupil effects						
Intercept	1007.87 (1.98)	1011.03 (2.11)	1004.05 (2.94)	992.55 (5.71)	1000.97 (3.13)	996.19 (3.55)
Turkish-speaking	-32.40 (2.20)	-29.05 (2.33)	-29.15 (2.33)	-29.33 (2.33)	-29.13 (2.33)	-29.21 (2.33)
Moroccan-speaking	-18.97 (2.41)	-15.78 (2.52)	-15.98 (2.52)	-16.17 (2.52)	-16.08 (2.52)	-16.22 (2.52)
Other non-Dutch speaking	-19.85 (2.23)	-18.01 (2.27)	-18.24 (2.27)	-18.21 (2.27)	-18.07 (2.27)	-18.26 (2.27)
Dutch-speaking (former colonies)	-5.16 (2.57)	-3.96 (2.58)	-4.06 (2.58)	-3.82 (2.58)	-3.70 (2.58)	-3.80 (2.58)
Father employed	3.71 (1.18)	3.31 (1.18)	3.27 (1.18)	3.22 (1.18)	3.29 (1.18)	3.25 (1.18)
Mother employed	1.05 (0.91)	0.96 (0.91)	0.48 (0.92)	0.88 (0.91)	0.94 (0.91)	0.54 (0.92)
Father's education	1.56 (0.31)	1.55 (0.30)	1.51 (0.30)	1.50 (0.31)	1.51 (0.30)	1.49 (0.30)
Mother's education	2.87 (0.32)	2.79 (0.32)	2.77 (0.32)	2.72 (0.32)	2.76 (0.32)	2.74 (0.32)
Father's income €/1000	4.62 (1.24)	4.22 (1.24)	4.07 (1.24)	3.39 (1.26)	3.77 (1.24)	3.69 (1.24)
Mother's income €/1000	-1.01 (1.49)	-0.91(0.1.49)	-0.96 (1.49)	-0.97 (1.49)	-1.13 (1.49)	-1.16 (1.49)
Pupil is girl	3.14 (0.82)	3.12 (0.82)	3.17 (0.82)	3.11 (0.82)	3.05 (0.82)	3.10 (0.82)
Class effects						
Per cent Non-Dutch speaking pupils	-	-0.16 (0.04)	-0.10 (0.04)	-0.06 (0.05)	-0.11 (0.04)	-0.07 (0.04)
Per cent Employed mothers	-	-	0.17 (0.05)	-	-	0.14 (0.05)
Average of fathers' education	-	-	-	-	-	-
Average of fathers' income	-	-	-	14.83 (4.27)	-	-
Variation of fathers' income	-	-	-	-	29.92 (6.89)	27.04 (6.93)
Variance components						
Pupils	922.34 (17.87)	921.37 (17.85)	920.60 (17.83)	921.42 (17.84)	921.24 (17.84)	920.64 (17.83)
Classes	224.66 (20.10)	217.15 (19.65)	212.91 (19.41)	209.64 (19.16)	206.38 (18.96)	203.79 (18.78)
Explained variance compared with preceding model						
Pupils	8.9%	0.1%	0.1%	0.0%	0.0%	0.0%
Classes	46.5%	3.3%	2.3%	3.5%	5.0%	1.2%
-2L ²	57,036.00	57,018.15	57,006.61	57,006.13	56,999.56	56,991.64

Model A, Ethnic composition hypothesis (Grade 4); Model C2, ethnic versus socioeconomic composition hypothesis (per cent employed mothers); Model C7, ethnic versus socioeconomic composition hypothesis (average of fathers' income); Model C8, ethnic versus socioeconomic composition hypothesis (variation in fathers' income)

Table 5 Parameters of selected multi-level models for language proficiency in Grade 6 (standard errors in parentheses)

Fixed parts	Baseline Model	Model A	Model B8	Model C8
Pupil effects				
Intercept	1058.13 (1.74)	1059.66 (1.83)	1054.19 (2.25)	1056.11 (2.45)
Language proficiency, grade 4 (centered)	0.38 (0.01)	0.38 (0.01)	0.37 (0.01)	0.37 (0.01)
Turkish-speaking	-11.24 (1.97)	-9.10 (2.13)	-10.81 (1.97)	-9.19 (2.13)
Moroccan-speaking	-1.60 (2.14)	0.50 (2.29)	-1.32 (2.14)	0.30 (2.29)
Other non-Dutch speaking	-5.96 (2.01)	-4.75 (2.07)	-5.76 (2.01)	-4.83 (2.07)
Dutch-speaking (former colonies)	-2.31 (2.31)	-1.52 (2.33)	-1.97 (2.31)	-1.41 (2.33)
Father employed	2.32 (1.07)	2.06 (1.07)	2.25 (1.07)	2.05 (1.07)
Mother employed	0.24 (0.82)	0.18 (0.82)	0.21 (0.82)	0.16 (0.82)
Father's education	1.71 (0.28)	1.70 (0.28)	1.68 (0.28)	1.68 (0.28)
Mother's education	2.64 (0.29)	2.59 (0.29)	2.61 (0.29)	2.58 (0.29)
Father's income €/1000	2.99 (1.12)	2.72 (1.12)	2.61 (1.13)	2.47 (1.13)
Mother's income €/1000	-0.01 (1.35)	0.05 (1.35)	-0.16 (1.35)	-0.08 (1.35)
Pupil is girl	3.55 (0.75)	3.55 (0.75)	3.51 (0.75)	3.52 (0.75)
Class effects				
Per cent non-Dutch pupils	-	-0.08 (0.03)	-	-0.06 (0.03)
Variation of fathers' income	-	-	13.44 (4.93)	11.02 (5.07)
Variance components				
Pupils	777.44 (15.02)	777.07 (15.02)	776.81 (15.01)	776.68 (15.01)
Classes	76.31 (9.49)	75.15 (9.41)	75.43 (9.42)	74.53 (9.36)
Explained variance compared with preceding model				
Pupils	23.8%	0.0%	0.0%	0.0%
Classes	67.0%	1.5%	1.1%	0.8%
-2L ²	55,761.31	55,754.62	55,753.89	55,749.93

Model A, ethnic composition hypothesis (Grade 6); Model B8, socioeconomic composition hypothesis (variation in fathers' income); Model C8, ethnic versus socioeconomic composition hypothesis (variation in fathers' income)

in the national language. However, when the heterogeneity of school classes in terms of parental income was accounted for, the initial effect of ethnic concentration was either reduced to non-significance (grade 4), or mitigated (grade 6). These are important findings, because it explodes the myth that high concentrations of ethnic minorities in schools will worsen the results of all pupils. In fact, the problem is socioeconomic in nature rather than socioethnic. What seems to affect all pupils' educational outcomes adversely is not ethnic concentration as such, but the concentration of children from parents with poor socioeconomic resources. Thus, Kahlenberg's idea that improving school class heterogeneity in terms of parental income will enhance all children's educational achievement seems to be partially supported.

This, however, does not imply that within a school class, parental resources have become irrelevant. In accordance with social and cultural capital theory, we

found that within a class, pupils from less affluent families not only perform worse regarding proficiency in the national language, but that also their proficiency develops slower than the language proficiency of more affluent pupils. The effect of parental resources turned out to be gender-specific. We found, for example, that father's unemployment had an adverse effect on his child's language proficiency in grade 4; an effect which was not observed for mother's unemployment. Additionally, mother's education seemed to have a stronger effect on language proficiency in both grade 4 and grade 6 than father's education, while the reverse was observed for father's and mother's income.

The effect of ethnicity, as measured by home language, is in accordance with a sociocultural perspective. In grade 4, pupils who speak Turkish, Moroccan or another non-Dutch language at home, performed worse than pupils who speak Dutch. Language proficiency of

Turkish and other non-Dutch speaking children lagged behind even more when they were in grade 6. This did not apply to Moroccan-speaking pupils. They too performed worse than native Dutch children in grades 4 and 6, yet their arrears had not increased. We explained these diverging developmental tracks by differences in family and community bonds, and language vitality between Turkish and Moroccan migrants.

A potential weakness of this study is the non-random exclusion of pupils. Pupils stemming from disadvantaged families were more likely to be excluded because their parents were less likely to fill out the questionnaires. As a result, effects sizes, if any, are expected to be underestimated. A strength of the data is, however, that the pupils were not assigned to classrooms in a way that is systematic to their Dutch language proficiency or learning rate. Therefore, this kind of selection cannot be a threat to the validity of the effects found in this study.

Our restriction to proficiency in the national language poses a limitation. To present a more comprehensive picture of a child's educational achievement, other measures, for example, scores on mathematical achievement or their educational aspirations and motivation might have been analysed, not just in elementary school but in secondary education as well. In the USA, for example, it has been found that the educational aspirations of Haitian and Mexican immigrants tend to decline across generations, even when English proficiency tends to improve across generations (Rumberger and Larson, 1998). This is an important observation, as in the current Dutch debate on migrant policy and integration, language proficiency is by far the most central issue. However, European governments, and perhaps the Dutch government in particular, may learn from experiences of traditional immigrant countries like, for example, Australia, Canada, or the USA, that proficiency in the national language is an important goal, but perhaps not the only one. Though immigrant assimilation is a rather complex process, it seems that the current Dutch policy, with its strong emphasis on assimilation, may evoke an adversarial stance toward the dominant Dutch culture, at least for some immigrant groups, if the employment opportunities for ethnic minorities are not increased at the same time. There have been reports that a minority of the Moroccan Dutch youth is developing such a stance (Stevens *et al.*, 2003).

On the other hand, the organization of the Dutch school system has several advantages. Dutch schools, for example, are funded entirely by the government, based on the number of pupils at a school. Schools receive additional funding in case a pupil stems from a disadvantaged

(i.e. disrupted, ethnic minority, or low income) family. As a result, the differences between Dutch schools are likely to be less great, and there are reports that the educational differences between ethnic minority children and native Dutch children tend to fade away, albeit very gradually (Tesser and Iedema, 2001; Gijberts and Hartges, 2005).

Perhaps children may not have a right to middle-class parents, as Kahlenberg (2001, p. 1) puts it, but children do have a right to become middle-class parents, '*to live in a middle-class neighborhood and to acquire a middle-class income and life-style*'. Reallocating children from disadvantaged families may be an important first step in that direction.

Note

1. In a model in which both average and variation of fathers' income were included, only the effect of variation of fathers' income was significant.

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