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Article

Inequalities in youth citizenship knowledge: Do language abilities of classroom peers matter?

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Keywords: citizenship competence, language, compositional effects, primary education

Highlights:

- Is acquiring individual citizenship knowledge also associated with peer language environment?
- Students in classes with lower language achievement attain higher civic knowledge scores
- High language-achievement students do better if part of lower language achievement class
- Students with lower achievement level do better when part of a better performing class
- Also the variance in language skills in the class influences citizenship knowledge

Purpose: The degree to which inequalities in citizenship outcomes of students develop, may depend on the composition of the classroom. We investigate to what degree language competences of the students' class mates are associated with youth citizenship knowledge.

Design/methodology/approach: A Dutch nationally representative data was used. Given the nested structure of the data, multilevel analyses were performed.

Findings: Inequalities in citizenship knowledge may be reduced when low language ability students are surrounded with classroom peers who display both variation in and high average levels of language ability. Being surrounded with high language ability peers was shown to have a negative general effect on citizenship knowledge of lower performing students, in line with the big-fish-little-pond effect.

Research limitations/implications: Before recommending our findings as a basis for policy-making within schools, additional evidence must be gathered to establish the causal nature of the relationships suggested by our analyses.

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1 INTRODUCTION

For the past two decades, policymakers, professionals and scholars have been worried about the erosion of social cohesion and disengagement with politics in many democratic societies (Galston, 2007; Eurydice, 2017). Niemi (2012) shows that young people are less informed about politics and democracy than previous generations at the same age. The same seems to hold for civic engagement (Macedo et al., 2005). More recently, increases in social and political inequalities by educational level have been added to this list of worries (Janmaat, Mostafa, & Hoskins, 2014; Witschge, Rözer, & Van de Werfhorst, 2019). For example, the International Civic and Citizenship Education Study (Schulz et al., 2018), a large-scale survey of 14-year-olds in 23 countries shows differences in so-called citizenship competences related to educational attainment. These differences are relatively large in the Netherlands, even if we compare the Dutch ICCS 2016 findings to those of countries with more or less similar standards of living and education, Flanders, Denmark, Finland, Norway, and Sweden (Munniksmä et al., 2017; Dijkstra, Ten Dam, & Munniksmä, 2021). Adolescence is a crucial period for the formation of citizenship after which political attitudes and orientations rapidly stabilize and become less flexible to change (Prior, 2010; Russo & Stattin, 2016; Shehata & Amnå, 2017). That inequalities among adolescents can have a lasting impact poses a fundamental threat to democracy (cf. Levinson, 2010): how can the democratic system claim legitimacy or equality of democratic opportunity when parts of the electorate – in particular, younger and lower educated citizens - are disengaged from politics?

Although a significant part of the differences in citizenship competences originate in the social and cultural background of students (Schulz et al., 2018), the school can influence these differences (Deimel, Hoskins, & Abs, 2021). This in particular holds for the knowledge component (Isac, Maslowski, Creemers, & Van der Werf, 2014). Various studies show that schools can foster adolescents' citizenship knowledge, by realizing an open classroom climate in which controversial topics are discussed from multiple perspectives (Geboers, Geijsel, Admiraal, & Ten Dam, 2013; Knowles, Torney-Purta, & Barber, 2018) and by incorporating specific citizenship courses into the formal curriculum (Hooghe & Dassonneville, 2011; Janmaat et al., 2014). Moreover, in schools where citizenship is regularly taught, the differences in citizenship knowledge between students of various social backgrounds are smaller than in schools where citizenship education is more or less neglected (e.g., Gainous & Martens, 2012; Neundorf, Niemi, & Smets, 2016; Hoskins, Janmaat, & Melis, 2017).

This article aims to broaden our understanding of how schools can contribute to citizenship by exploring the association between the peer language environment and inequality in young people's citizenship knowledge. Language ability can be directly influenced by schools and has been shown to be strongly associated with citizenship attitudes, and citizenship knowledge (Eidhof, Ten Dam, Dijkstra, & Van de Werfhorst, 2017). In general, language is the most important tool for social interaction and serves as a vehicle by which people make sense of society and themselves as citizens (cf. Lee &

Smagorinsky 2000). Whether individual citizenship knowledge is also associated with the language abilities of classroom peers, however, remains unclear. The contribution of our study to the literature as well as to educational practice, lies in addressing this question. It investigates whether pre-existing inequalities in citizenship knowledge are influenced by the language characteristics of classroom peers. Regarding young adolescents' citizenship knowledge we focus on both the political and social dimension of citizenship. After all, citizenship is not just something for "later in life" but also matters to students' daily lives. We consider this to be crucial for a socially relevant and meaningful approach to young people's citizenship (Geijsel, Ledoux, Reumerman, & Ten Dam, 2012; Ten Dam, Dijkstra, Van der Veen, & Van Goethem, 2020).

2 THEORETICAL BACKGROUND: CITIZENSHIP COMPETENCE AND THE PEER LANGUAGE ENVIRONMENT

Education is often seen as an instrument with the potential to address societal issues. As educational systems typically reach virtually all young citizens due to statutory compulsory education, they are thought to be particularly suited to perform two tasks. First, education may be able to elevate the general level of citizenship competences of students (Keating, Kerr, Benton, Mundy, & Lopes, 2010; Schulz, Ainley, Fraillon, Kerr, & Losito, 2010; Geboers et al., 2013; Isac et al., 2014). Secondly, education may be able to alleviate pre-existing inequalities between students since it reaches virtually all young citizens (e.g. Eckstein, Noack, & Gniewosz, 2012; Gainous & Martens, 2012; Dijkstra, Geijsel, Van der Veen, & Ten Dam, 2015; Janmaat et al., 2014; Neundorf et al., 2016; Hoskins et al., 2017). Thus, schools are thought to be able to increase the overall quality of citizenship competence in a population and provide more equality of civic opportunity.

Indeed, in response to the above challenges, policymakers in many democratic societies have called on schools to equip their students for civic participation, typically through civic or citizenship education (The National Task Force on Civic Learning and Democratic Engagement, 2012; Eurydice, 2017). Since the provision of citizenship education can be considered an important task of schools, researchers have begun to investigate which citizenship outcomes are particularly desirable for schools to pursue and how to achieve them. Their findings frequently show that citizenship knowledge can be stimulated by giving structural attention to citizenship in the curriculum, reflecting on community service and fostering an open classroom climate in which controversial topics are discussed from multiple perspectives (Torney-Purta, 2002; Keating et al., 2010; Geboers et al., 2013; Isac et al., 2014; Van Goethem, Van Hoof, Orobio de Castro, Van Aken, & Hart, 2014). Moreover, schools that spend more time on citizenship education provide compensation for students who initially score lower on citizenship outcomes due to social background (Neundorf et al., 2016). The question explored here is whether and how peers' language ability influences the citizenship knowledge of low language-ability students.¹

2.1 Peer effects in the social sciences

In the social sciences there has been a growing volume of literature on the effects of peer group characteristics on individual outcomes. Different economics, sociological and psychological studies have considered a large number of individual outcomes as well as definitions of peer groups (ranging from neighbourhood peers to within-classroom peers). The study of peer effects in education has thus far largely focused on academic achievement outcomes such as language ability, mathematics ability and GPA scores (Sacerdote, 2014). Based on the studies carried out on peer effects, we argue that peers may also influence each other's citizenship knowledge (cf. Isac, Maslowski, Van der Werf, 2011).ⁱⁱ

2.1.1 Peer effects on traditional academic achievement outcomes

The study of peer effects in education started with the landmark Equality of Educational Opportunity study by Coleman and his colleagues (1966). In this American study, Coleman et al. report that students achievement was “[...] strongly related to the educational background and aspirations of other students in the school.” A Canadian study subsequently found student performance to increase with average classroom IQ score (Henderson, Mieszkowski, & Sauvageau, 1978), although this relationship was nonlinear with diminishing marginal returns. Both studies suggested that academic achievement depends in part on the characteristics of other students in the same class or school. Typically, these characteristics include socioeconomic background and prior achievement variables, which are aggregated into class or school averages.

While the underlying mechanisms have received little attention from researchers, peer effects have been studied in a variety of countries and educational contexts over the last decades. However, in earlier reviews of reported findings, evidence about the existence and magnitude of peer effects were found to be inconclusive (Thrupp, Lauder, & Robinson, 2002; Vigdor & Nechyda, 2007). These observations have led to a critical evaluation of the methodological soundness of peer effect studies (Manski, 1993; Glewwe, 1997; Thrupp, Lauder, & Robinson, 2002; Ammermueller & Pischke, 2009; Van Ewijk & Slegers, 2010). The majority of the studies on primary and secondary education use linear-in-means models, which assume a general effect of the mean characteristic of the peer group. This implies that more subtle relationships between peer characteristics and individual outcomes may have been overlooked. This can occur, for example, when lower ability students respond differently to high average peer ability than student of medium or high ability. In a recent review of the literature on peer effects, Sacerdote (2014) finds that approximately half of the peer-effect studies that assume linear-in-means effects report modest or large effects on test scores. The other half of the studies do not find peer effects on academic achievement. In an evaluation of this finding, Sacerdote reports that estimated peer effects can be found more often when the assumptions of the linear-in-means model are replaced by assumptions that allow for a more sophisticated analysis of

peer effects. In particular, taking into account that the effect may vary by both the peer characteristics distribution and the student's position in the distribution of test scores leads to more robust peer effects (Hoxby & Weingarth, 2005; Imberman, Kugler, & Sacerdote, 2012).

2.1.2 Peer effects on social outcomes

Considerably fewer studies have investigated to what degree peer effects are relevant to social outcomes. While citizenship knowledge is cognitive in nature, it also pertains to interpersonal and democratic processes that are distinctively social. For the purposes of this study, we follow Sacerdote (2014) and broadly define social outcomes as outcomes that relate to situations – whether interpersonal, public or political – in which social interaction plays an important role. Sacerdote finds that larger peer effects are found for social outcomes than for academic achievement. Studies of peer effects on social outcomes find substantial effects of peer characteristics on, for example, binge drinking, smoking, taking up paternity leave, church-going and the likelihood of joining a fraternity or sorority (Gavira & Raphael, 2001; Sacerdote, 2001; Duncan, Boisjoly, Kremer, Levy, & Eccles, 2005; Dahl, Løken, & Mogstad, 2012; Huisman, Van de Werfhorst, & Monshouwer, 2012). In addition, Campbell (2007) demonstrates that racial diversity in the classroom can negatively affect the amount of political discussion and subsequent political learning.

2.2 Peer effect mechanisms in education

In the research tradition of peer effects in education, several hypotheses have been put forward. The first explanation proposed by various authors is that peer effects may be caused by increases in performance due to social comparison mechanisms, that is, individuals evaluate their own performance by comparing themselves to others to reduce their uncertainty and improve their self-concept (Blanton, Buunk, Gibbons, & Kuyper, 1999; Huguet, Dumas, Monteil, & Genestoux, 2001; Eisenkopf, 2010). However, the central concept of social comparison theory is the specific other (i.e., a comparison made by a student with a specific other student), rather than the generalized other (i.e., the average performance of the peer group). As the latter is our main focus, the big-fish-little-pond-effect (BFLPE) hypothesis provides more relevant insights (Marsh et al., 2008). Among others things, the BFLPE hypothesis states that after controlling for individual ability, students develop a relatively lower academic self-concept in higher performing classes or schools. Academic self-concept, in turn, is predictive of a range of academic achievement outcomes. In other words, the hypothesis predicts that “[...] equally able students have lower academic self-concepts (ASCs) when attending schools where the average ability levels of classmates is high, and higher ASCs when attending schools where the school average ability is low” (Marsh et al., 2008, p. 319). As such, average peer language ability may also have a negative effect on the citizenship knowledge of all students after controlling for individual ability, since students in classes with higher average peer language ability may develop a relatively lower academic self-concept. Support for the

BFLPE hypothesis has been demonstrated across countries and across student and context characteristics (Marsh et al., 2008). Because citizenship knowledge is acquired partly inside and partly outside the school, the BFLP effect may be less pronounced than it is for learning outcomes that are predominantly acquired in school.

There is also evidence suggesting a positive relationship between peer language ability and youth citizenship outcomes. Besides an open classroom climate, for example, the quality of interstudent conversations has been shown to influence youth citizenship outcomes (Schuitema, Veugelers, Rijlaarsdam, & Ten Dam, 2009; Schuitema, Van Boxtel, Veugelers, & Ten Dam, 2011). Therefore, if one's peers display higher language ability, they are more able to express themselves verbally, which may lead to higher quality classroom dialogues. With respect to differential peer effect hypotheses, as far as we know there are no studies suggesting mechanisms that also apply to citizenship knowledge acquisition.

2.3 Language ability and peer effects

At the same time, individual student characteristics account for around 70% of variance in youth citizenship scores, as measured by the ICCS operationalization of citizenship competences and family background variables like parental education and ethnic background (Schulz et al., 2010; Isac et al., 2014). While not all individual student characteristics are malleable, language ability is. Recently, language ability has been shown to be strongly associated with citizenship attitudes, citizenship knowledge and citizenship skills (Eidhof, Ten Dam, Dijkstra, & Van de Werfhorst, 2017). Is individual citizenship knowledge also associated with the language abilities of classroom peers? The contribution of this paper lies in addressing this question, and investigates whether pre-existing inequalities in citizenship knowledge are influenced by the language characteristics of classroom peers. Although outcomes relating to educational citizenship, such as citizenship knowledge, have been used as outcome variables in the literature on peer effects (e.g. Campbell, 2007; Janmaat, 2011), research into the relationship with peer language ability is still lacking.

When it comes to academic achievement outcomes, however, a wide range of studies on peer effects have been conducted. In a review, Sacerdote (2014) finds that methodologically more advanced studies commonly report modest effects of peer characteristics such as high prior scholastic ability and socioeconomic background on outcomes such as language and mathematics scores. Typically, higher ability students have a positive effect on the achievement of their classroom peers under *ceteris paribus* conditions. The main goal of this paper is to investigate what impact student language classroom composition has on the development of citizenship knowledge in primary school. Do low language ability students in classes with high dispersions and high average levels of language ability develop more citizenship knowledge?

2.4 Language composition of the classroom and youth citizenship knowledge

Previous studies have shown that citizenship competences are primarily formed during adolescence and early adulthood. Certain political attitudes (e.g. political interest and willingness to participate in politics), acquired during adolescence are more or less persistent, whereas other attitudes (e.g. voting intention, political confidence, personal efficacy) fluctuate during adolescence and early adulthood (Eckstein et al., 2012; Hooghe, Dassonneville, & Marien, 2014; Quintelier, & Van Deth, 2014; Geboers, Geijsel, Admiraal, Jorgensen, & Ten Dam, 2015). Citizenship knowledge is found to develop in a more or less linear fashion (Geboers et al., 2015). We focus our study therefore on youth citizenship knowledge of grade 6 students in primary education, which allows us to study the development of citizenship knowledge and relate it to the students' language composition of the classroom in an early stage of the formative phase. Because early differences between children in ability and continued exposure to effects of peers may accumulate over time (Lauder et al., 1999; Heckman, 2006), we expect changes in equalities to be more likely and impactful in preadolescence. Moreover, raising citizenship knowledge is probably an effective strategy to revitalize and sustain democratic citizenship (Galston, 2007). Finally, we follow the conceptualization of youth citizenship of Ten Dam, Geijsel, Reumerman and Ledoux (2011). According to these authors, youth citizenship is embedded in the daily lives of young people (cf. Lawy & Biesta, 2006). The conceptualization of these authors focuses on four exemplary citizenship tasks: acting democratically, acting in a socially responsible manner, handling conflicts and dealing with differences.

3 RESEARCH QUESTIONS AND HYPOTHESES

This paper examines two research questions. First, to what extent is classroom composition in terms of language ability (both with regard to its mean and its dispersion) associated with the students' civic knowledge? Secondly, what are the differential effects of classroom composition on students of different language ability: do the mean and variance in classroom-level language ability have heterogeneous effects on civic knowledge for students of different language ability? With these two questions we can explore to what extent peers matter for a student's civic knowledge, and whether high-performing and low-performing students differ in the way they depend on classroom composition in terms of language ability.

A first set of hypotheses concerns the impact of the average language ability in a class. A straightforward hypothesis inspired by the literature on school performance (e.g., Hoxby & Weingarth, 2005) would be that higher language ability in the class improves the quality of classroom discussion and thereby leads to improved civic knowledge (Schuitema et al., 2009; 2011) (hypothesis 1). However, based on the BFLP phenomenon, equally capable individuals have higher civic outcomes when they are part of a class with a lower average performance than of a class with a higher average performance. While

the BFLPE hypothesis was formulated to investigate student academic self-concept, it is possible that it also applies to other untested student outcomes in which self-confidence and mutual comparison play a role, such as civic engagement. If that is the case, student civic knowledge will be improved in lower-performing classes, controlling for individual language ability (hypothesis 2). Moreover, this argument would imply that the negative effect of the average classroom performance is stronger for more highly performing students (hypothesis 3).

A second set of hypotheses concerns the variance in language skills in the classroom. On the one hand, if classroom discussions are fostered by a sense of equality among the students, it is likely that larger variability in performance inhibits classroom discussion, which would lead to lower civic knowledge (hypothesis 4). However, in classrooms with more variability in language ability, students will be able to learn from each other, in which case civic knowledge may be boosted. Diversity in language ability would then have a particularly positive effect on civic skills among students with less language ability (hypothesis 5).

4 METHOD

4.1 Data and sample

The analyses have been performed on the Cohort Study on Educational Careers data, a nationally representative school cohort study conducted in the Netherlands (commonly referred to as COOL5-18). The samples of this school-based survey comprised 17,403 students in 1,081 grade 6 classes at 671 primary schools in the Netherlands (Driessen, Mulder, & Roeleveld, 2012). The average age of the grade 6 Dutch primary schools students included was 12 years and 5 months (S.D. = approximately 7 months). The data were collected in 2008 and 2011 towards the end of the school year. The cohort study did not include previous or consecutive waves with civic knowledge measures, hence the cross-sectional nature of our analyses. The 2008 and 2011 cohorts were combined to yield higher statistical power. Possible cohort differences were accounted for by including cohort as a control variable.

4.2 Independent variables

As to peer language characteristics both class average language achievement and class standard deviation in language achievement are included, each based on a z-standardized score of language achievement across all students in the data set. The latter is constructed by taking the standard deviation of students' language performance scores. The class average and standard deviation were correlated with $r = 0.19$ at the class level, thus multicollinearity is not a concern. These variables are also included in the cross-level interactions with students' z-standardized language achievement scores, as measured by standardized national reading comprehension tests provided by national testing agency Cito. At the time of the data collection, this test was the largest of the standardized tests

available in the Netherlands. It is one of the most important factors determining the teacher's recommendation for the student's secondary school track, which is de facto a binding recommendation as few secondary schools deviate from teacher recommendations.

4.3 Control variables

To exclude variance caused by other factors than language ability, the following control variables were used: age, gender (0 = male, 1 = female), household religion (operationalized as the religion of the student's mother), ethnicity (Surinam Dutch, native Dutch, Turkish Dutch, Moroccan Dutch and Other), parental education (highest level of education completed = pre-vocational education (1), general/vocational secondary education or senior vocational education (2), and higher education (3)),ⁱⁱⁱ and z-standardized language achievement and mathematics achievement scores based on test scores provided by national testing agency Cito. For household religion, 34 percent of respondents displayed missing data. A common technique to deal with variables with a sizeable share of missing values is multiple imputation (Allison, 2003). Importantly, the proportion of missings should not be a guiding principle in deciding on multiple imputation (Madley-Dowd et al., 2019). We used multiple imputation to impute missing values for household religion using the dependent variables, parental education and ethnicity as predictor variables. For our analyses the imputation enables us to have a larger sample size for the variables of core interest, in particular class-level statistics on language achievement. At the class level, the variable Classroom Climate was included. Classroom Climate was operationalized as the proportion of students scoring higher than 3 points on a 5-point scale, since mean scores may obscure classes in which only a few students experience negative interactions with their classmates. The Classroom Climate scale consisted of five items, measuring agreement to statements such as 'My classmates and I get along well', 'I feel alone at times', and 'I would rather be in a different class'. It has a Cronbach's alpha score of .92.

To control for the socioeconomic composition of the class, variables for the proportions of students with parents who had completed pre-vocational education (1), general/vocational secondary education or senior vocational education (2) and higher education (3) were included. Moreover, the ethnic composition of the class was controlled for by variables indicating the proportions of students with Surinam Dutch, native Dutch, Turkish Dutch and Moroccan Dutch ethnic backgrounds per class, as these represent the largest ethnic groups in the Netherlands. To improve reliability of classroom composition measures, classes were only included if five or more students provided data without missing values and no more than 30 percent of students have one or more missing values after multiple imputation on household religion.

4.4 Dependent variable

To measure youth citizenship knowledge of students, the Citizenship Competences Questionnaire (Ten Dam et al., 2011; Ten Dam, Geijssel, Ledoux, & Meijer, 2013) was used. This instrument aims to measure youth citizenship by putting emphasis on the abovementioned four citizenship tasks: acting democratically, acting in a socially responsible manner, handling conflicts and dealing with differences. The knowledge test consisted of 27 multiple-choice items with three response options for each item, for example: “All children have a right to: a) an allowance, b) choose who they want to live with or c) education”. This scale has a Cronbach’s alpha score of 0.83. The citizenship knowledge score was z-standardized. The descriptives of the data can be found below (table 1).

Table 1. Descriptives categorical and continuous variables

Categorical variables	% students
<i>Sex</i>	
Boy	49.8
Girl	50.2
<i>Parental ethnicity</i>	
Non-migrant (Dutch)	76.3
Turkey	6.5
Morocco	5.5
Suriname	2.6
Other	9.1
<i>Household religion</i>	
None	32.7
Roman Catholic	30.2
Dutch Protestant Church	13.8
Protestant Orthodox Church	2.7
Evangelical	1.6
Other Christian	1.6
Islamic	14.6
Other	3.0
<i>Highest educational level of parents:</i>	
Pre-vocational education	26.4
Sec. education or senior vocational education	42.4
Higher education	31.2
<i>Year</i>	
2008	47.8
2011	52.2
Total	100.0

Continuous variables				
	Mean	SD	Min	Max
<u>Dependent variable</u>				
<i>Citizenship knowledge</i>	0.00	1.00	-4.70	1.41
<u>Independent variables</u>				
<i>Language ability</i>	0.00	1.00	-4.39	5.35
<i>Class average language ability</i>	0.00	0.80	-3.20	3.24
<i>Class S.D. in language ability</i>	1.77	0.38	0.40	3.86
<u>Control variables</u>				
<i>Percentage non-migrant</i>	0.76	0.30	0.00	1.00
<i>Percentage Turkish</i>	0.06	0.13	0.00	0.88
<i>Percentage Moroccan</i>	0.06	0.13	0.00	1.00
<i>Percentage Surinam</i>	0.03	0.10	0.00	1.00
<i>Proportion high classroom climate scores</i>	0.93	0.07	0.50	1.00
<i>Proportion max. educational level parents</i>	0.27	0.22	0.00	1.00
<i>Proportion max. educational level parents</i>	0.42	0.17	0.00	1.00
<i>Mathematics ability</i>	0.00	1.00	-6.99	5.02

Note. The variables language ability and math ability were z-standardized, as were the dependent variables

4.5 Analytical design

Given the nested structure of the data, multilevel analyses were performed. The results of three models are given; model 1 includes student-level variables and control variables, model 2 adds class-level variables to model 1, while model 3 removes schools with only one class and includes school fixed effects. Stata was used to perform the statistical analyses.

As mentioned, a number of methodological concerns have been raised in the study of peer effects in recent years, due to the various conflicting results reported. In this section, we will explain how we address these concerns. To begin with, Calvó-Armengol, Patacchini, and Zenou (2009) argue that in studies on peer effects the boundaries of the peer group are often arbitrary. We address this by taking the class as the boundary for the peer group, since this gives a higher likelihood of interaction occurring between peers than when the school is used as the boundary (cf. Van Ewijk & Slegers, 2010). In particular, since classes are the basic unit in which learning takes place in schools, peer effects are more likely in this setting since classroom discussions involve all students. This assumption is confirmed by Vigdor and Nechyba (2007), who find class peer effects to be more frequently and more substantially correlated with individual achievement than grade-level peer effects.

Secondly, Ammermueller and Pischke (2009) note that measurement error can lead to substantial bias in the estimation of peer effects. Our peer characteristics suffer less from measurement error, as they are not measured through self-reporting but assessed objectively. Moreover, to avoid imprecise measurement of aggregated peer characteristics

due to high proportions of missing data at the class level, classes with more than 30% missing data were removed.

Thirdly, Manski (1995) and others have pointed out that peer effect studies in education may suffer from selection bias, because students may not sort randomly into schools. Instead, the characteristics of the peer population may influence school selection by students and parents. In studies explicitly controlling for contextual effects (McEwan, 2003; Ammermueller & Pischke, 2009), the magnitude of such effects was found to be small and of little practical significance. Nevertheless, we include school fixed effects analyses to control for contextual effects caused by selection bias.

Typically, Dutch primary schools do not sort their students in classes by ability, although a few primary schools have indicated that they sort students to some degree by reading ability. Using representative data, Ammermueller and Pischke (2009) do not find evidence for non-random assignment of students to classes in the Netherlands, nor do they find much difference in reading scores between classes in primary schools that use tracking and those that do not. Nevertheless, there is a possibility that classes are structured around existing friendships among students, so that the class composition may still be endogenous in part, even in the absence of school policies to group students by academic performance.

As already mentioned, an additional methodological criticism is directed at the linear-in-means approach, in which the mean peer characteristic is assumed to have a similar, linear effect on all students. However, average levels are likely not the only peer group characteristic that matters, while possible also affecting students of different ability in different ways (Glewwe, 1997; Hoxby & Weingarth, 2005; Sacerdote, 2014). We address this methodological consideration in two ways: (1) by including the standard deviation of peer language ability and (2) by including the interactions between individual language and mathematics ability on the one hand and peer group characteristics on the other hand. We therefore explicitly investigate heterogeneity of peer effects, allowing us to assess whether low ability students are influenced differently by peer group characteristics than high ability students.

5 RESULTS

As can be seen from Table 2, most variance is explained by factors at the individual level, with school and class factors together explaining 10.9% of the total variance in citizenship knowledge.

Table 2. Intraclass correlations for citizenship knowledge

Level	
<i>School</i>	0.055
<i>Class</i>	0.054
<i>Individual</i>	0.893

Table 3 shows the results of the multilevel models. Model 1 estimates a three-level model (students nested in classes nested in schools). There is a strong association between individual language ability and civic knowledge. As both the independent and dependent variables are standardized, the effect size can be interpreted as a Cohen's *d* of 0.55. The main effect of the class-level average language ability is negative. Thus, given a student's language score, he or she will have more civic knowledge in more poorly performing classes. This result resembles the Big Fish Little Pond Effect (i.e. in disagreement with hypothesis 1 and in agreement with hypothesis 2). In an additional analysis, removal of individual language ability control variables resulted in the disappearance of a significant average peer language ability effect, in support of the potential presence of a BFLPE mechanism. It should be noted that the main effect of class-average language achievement refers to students with an average score on individual language achievement (i.e. *z*-score = 0). For students of higher ability, the negative effect of the class-level score is stronger, while it is weaker for the low-ability students (which is in keeping with hypothesis 3). These results show that high-achievement students gain more in terms of civic knowledge if they are part of a more poorly performing class. By contrast, students with a lower individual achievement level gain by being in a better performing class (with a decrease of less than a standard deviation, the effect of the class average becomes zero, and positive for individual achievement scores below -1 SD of the population average).

With respect to the effects of the dispersion of language achievement in the class, the main effect is not significant. Thus, while this effect is negative, there is no statistically significant association for the dispersion in a class for the average student (disproving hypothesis 4). However, when a student's performance goes down, a larger dispersion in language achievement is associated with improved civic knowledge (in line with hypothesis 5). By contrast, for the high-performing students, a larger dispersion is associated with lower civic knowledge. These findings are in line with the hypothesis that class heterogeneity promotes civic knowledge among lower performing students (e.g. through the promotion of interactions) and lowers civic knowledge among students with a high language score.

Models 2 and 3 show that the results are very similar if class-level variables (model 2) and school fixed effects (model 3) are included. Thus, the within-school sorting into classes does not seem a concern when assessing class effects on civic knowledge (as also reported by Ammermueller & Pischke, 2009).

Table 3. Regressions for citizenship knowledge - Peer effects and interactions

	(1)		(2)		(3)	
	Effect	Interaction with Language ability	Effect	Interaction with Language ability	Effect	Interaction with Language ability
Class average language level	0.47*** (0.03)	n/a	- 0.12*** (0.03)	n/a	- 0.13*** (0.03)	-0.09*** (0.02)
Class SD language level	0.00 (0.06)	n/a	-0.06 (0.06)	n/a	-0.04 (0.06)	-0.18*** (0.03)
Individual language ability					0.55*** (0.03)	n/a
Student-level variables			✓	✓	✓	✓
Class-level variables			✓	✓	✓	✓
Only schools >1 class	✓	✓	✓	✓	✓	✓
N (students)		12681		12681		12681
N (classes)		780		780		780
N (schools)		396		396		396

6 DISCUSSION

The central research question of our study was: is acquiring individual citizenship knowledge in primary school associated with the language abilities of classroom peers? Our findings suggest a tentative affirmative answer. We will begin by briefly summarizing our main findings. As suggested by the big-fish-little-pond effect (BFLPE), students in classes with a lower levels of language achievement attain higher civic knowledge scores after controlling for their own language scores (hypothesis 2). This comes with differential effects (hypothesis 3): high language-achievement students do better in terms of civic knowledge if they are part of a class with lower levels of language achievement. By contrast, students with a lower individual achievement level do better when part of a better performing class. Beside the average language level, the variance in language skills

in the class also influences citizenship knowledge (hypothesis 5): class heterogeneity promotes the civic knowledge of students with lower language scores and is detrimental to high-performance students.

Looking at our results, we notice various elements in particular. We investigated whether the relation between peer language characteristics and students' citizenship knowledge is the same for students with different ability levels. Our findings suggest that this is not the case. Instead, after controlling for other factors, low language ability students have relatively higher citizenship knowledge scores in classes with a high average language ability and variation. This differential peer effect is strongest in case the peer characteristic is variation in average peer language level, supporting the second differential peer effect hypothesis. Thus, particularly low language ability students appear to have higher citizenship knowledge when being part of a class in which some of their peers have a higher language ability than they and others have a similar level of language ability than they. In other words, low language-ability students have lower citizenship knowledge scores when surrounded by low language-ability peers who vary little in language level.

Do better performing students positively influence their peers' academic achievement? Here we find that a high class average language level is negatively associated with citizenship knowledge, which is in line with the big-fish-little-pond-effect hypothesis. The additional analysis, in which individual language ability control variables were removed, resulted in the disappearance of a significant average peer language ability effect, in line with the potential presence of a BFLP mechanism. However, this does not completely refute the competing hypothesis; the influence of peer language ability on citizenship knowledge via the quality of classroom discussion may also be present, albeit less pronounced. Importantly, the findings only provide support for the BFLPE-hypothesis for students with scores near 0 on the interaction variables, given our analytical design.

When the peer effects on citizenship knowledge are considered in their entirety, these findings qualify the Boutique model of peer effects developed by Hoxby and Weingarth (2005), which states that being surrounded by peers with similar characteristics may result in higher achievement, as the learning environment adapts more to the presence of a certain type of students when these students are more numerous. The qualification suggested by our results is that while higher-ability students indeed benefit from an environment of peers with similarly high language abilities, lower language-ability students not only benefit from the presence of higher-language ability students, but also from a variation in language ability level. It is indeed imaginable that low language-ability students benefit more from classroom discussions when they are more numerous and, vice versa, that they are less taken into account when their numbers are small. In other words, classes that are diverse with respect to language ability may increase the learning opportunities for low language-ability students (Hanushek & Wößmann, 2006), as they may feature more accessible language use that would more often fall within lower language-ability students' zones of proximal development.

Would students with high language ability have something to gain from such interactions, too? First, having fellow students with more citizenship knowledge may serve their enlightened self-interest, since such knowledge facilitates democratic participation (Galston, 2007), and thus strengthens a democratic culture. Secondly, depending on the degree to which language ability is associated with social background, we speculate that students with higher language ability might benefit from interaction with lower language-ability students by exploiting the diversity present in heterogeneous classrooms. Through their discussions they may exchange perspectives and gain a deeper understanding of societal and political issues and thus develop other valuable citizenship outcomes, for example more sophisticated citizenship attitudes and skills (Geboers et al., 2013).

Several questions are raised by the above results: Do teachers adapt their teaching strategies and educational priorities to the ability distribution present in the classroom? And to what degree can classroom composition or teaching strategies impact inequalities in citizenship outcomes in the long run? Further research may address these questions by using a combination of longitudinal and experimental or quasi-experimental designs. While our findings may be interpreted as a reason to distribute low language-ability students across classes with sufficient variation in language ability (rather than concentrating them in one class), we do not recommend using these findings a basis for policy-making, for two reasons. First, additional evidence must be gathered to establish the causal nature of the relationships suggested by our analyses. Secondly, changes in peer group composition may lead to unexpected outcomes, as the falling apart of artificially created social groups based on peer effect studies has illustrated (Carrell, Sacerdote, & West, 2013). In addition, an important limitation of the current study is that language ability is operationalized as standardized reading comprehension scores. The ability to speak, listen and write are important aspects of language ability as well – and follow-up research could explore whether there are differential effects for these language abilities. Nevertheless, the presented findings can be used to argue that, at the very least, teachers need to be aware of potential compositional effects and of ways to respond to them to avoid increasing existing inequalities in citizenship knowledge even more. More generally, the relevance of our study to educational practice lies in providing possible avenues for improving students' citizenship competences. Finally, our findings demonstrate that when policymakers or school officials consider making deliberate changes to classroom composition, they may affect both academic achievement and citizenship outcomes differently for students of varying ability. Therefore, the possible effects of such changes in classroom composition need to be considered along multiple dimensions.

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ENDNOTES

ⁱ ‘Low language-ability students’ denotes students in regular schools with relatively low levels of language ability. In subsequent sections, language ability is operationalized as z-standardized national reading comprehension test scores. ‘Variation’ denotes the level of dispersion in language ability in a class, operationalized with the standard deviation.

ⁱⁱ The term ‘peer effects’ is used in multiple ways in the literature. Here, we use it to denote compositional and differential effects of peer group characteristics, in which the peer group is defined as all students belonging to the same primary school class. Peer group characteristics can include SES, cultural capital or academic ability, among others. In this paper, language ability is the peer characteristic of interest.

ⁱⁱⁱ In our Dutch sample, these levels were operationalized as LBO (including LO, BaO, VBO), MBO (including MAVO, HAVO and VWO) and HBO/WO as maximum levels of education completed.

RESEARCH ETHICS

All analyses were performed on data gathered as part of the multi-cohort, longitudinal COOL project (Driessen, Elshof, Mulder, & Roeleveld, 2015), which included an informed consent procedure for parents or legal guardians of the children involved.

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