

Challenging monolingual teaching practices

The roots and fruits of teachers' tolerance towards multilingualism

A dissertation in partial fulfillment
of the requirements for the degree of
Doctor in Sociology

Author: Anouk Van Der Wildt
Supervisors: Prof. Dr. Mieke Van Houtte
Prof. Dr. Piet Van Avermaet

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Lay out: Joris Van Der Wildt



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Acknowledgements

Dit is waar ik al die jaren zo naar heb uitgekeken en van heb gedroomd. Het moment waarop ik kan terugkijken en denken: Wauw, wat zijn dat vier zotte jaren geweest! Ik vind het fantastisch om mensen te bedanken. Mijn hart heeft, zoals altijd, heel veel liefde om te geven, dus hou jullie vast!

Ik begin bij mijn promotoren, Mieke en Piet. Omdat zij er van in het begin bijwaren en mij de geweldige kans hebben gegeven om mijzelf te ontplooien in een doctoraat waar ik mij echt op mijn plaats heb gevoeld. (Sense of belonging: check) Ik heb nog nooit op een sollicitatiegesprek zo vaak gezegd dat ik dingen nog niet kon! En daarna, toen ik dan uiteindelijk begon aan de vakgroep, heb ik nog nooit zo sterk gevoeld dat er veel van mij verwacht werd. (High expectations: check)

Mieke, ja, jouw deur staat altijd open en je leest heel snel en nauwkeurig alles na. Maar dat weet je ondertussen al, dus ik wil je ook voor iets anders bedanken. Ik ben zo blij dat jij altijd in mij geloofd hebt en, hoe beu ik dat soms ook was, dat je me altijd vooruit hebt geduwd, richting de perfectie. Daarnaast herkende je ook wanneer iets mij energie gaf, en, ook al was je soms niet overtuigd van het directe nut voor mijn doctoraat, je hebt die dingen dan toch gewoon laten gebeuren. Ik herinner mij nog dat ik ooit voor een cursus bij jou op bureau stond met mijn blaadje argumenten waarom ik vond dat die cursus nodig was. Al die argumenten waar ik zo over had nagedacht, en dan was jij akkoord na een simpele “Ja maar, Mieke, ik zit hier nog twee jaar en ik wil graag nog iets nieuws leren”. Ik vind het super dat jij me altijd ondersteund hebt in mijn academisch groeiproces. Dank u, dank u, dank u!

Piet, al vanaf het begin van mijn doctoraat spraken we af om namiddagen samen “boompjes op te zetten”. Dat was altijd heel inspirerend en ik heb achteraf bekeken spijt dat ik niet vaker op de koffie ben geweest bij jou. Maar het fijne is dat ik weet dat dat nu ook nog altijd kan en dat ik ervan overtuigd ben dat we elkaar gaan blijven tegenkomen. Jij hebt me ook altijd aangemoedigd groot te blijven dromen en geen genoeg te nemen met een flauw afkooksel van één of ander droomscenario. Zodus, dank je wel voor al het cheerleaden, voor de inspiratie, voor het duwtje in de rug, voor de woorden van steun en voor het duimen en de proficiats.

Naast mijn lieve promotoren, wil ik ook de leden van de jury bedanken: Bart, Orhan, Joana, Ruben en John als voorzitter. Enerzijds is het altijd heel leuk als mensen oprecht geïnteresseerd zijn in je werk, maar anderzijds vind ik het ook gewoon fijn dat jullie mee deel willen uitmaken van de academische show en jullie toga's willen aandoen voor mij.

Ik ben ook heel dankbaar voor alle directies, leerkrachten, leerlingen en ouders die hebben meegewerkt aan ons onderzoek. Geen doctoraat zonder die vele vragenlijsten. Dank jullie wel om onze vragenlijsten toch af te werken, ondanks het zuchten, de tijdsdruk en vooral die vervelende lange teksten in de test begrijpend lezen. Ik heb gemerkt dat één leerling een paar traantjes heeft laten vloeien door onze vragenlijsten. Op dat moment brak mijn hart, maar gelukkig kan ik vandaag zeggen dat die traantjes niet voor niets waren, ook al weet dat betreffende meisje dat waarschijnlijk niet. Ik wil ook Lut, de directrice van de school van mijn mama, bedanken omdat we bij hen altijd welkom waren voor het testen van E-Validiv.

Doorheen de vier jaren van mijn doctoraatstraject, heb ik heel wat bureaugenoten gehad: Pieter, Pieter-Paul, Anina, Saskia, en voor de laatste twee jaar Ellen, Emilien en Karen. Jullie hebben allemaal meegebouwd aan de echte thuis die onze bureau nu is geworden. Pieter-Paul, ik wil jou bedanken om mij mijn weg te doen vinden naar de koffiepauzes en om mij de roddels te vertellen als ik de koffiepauze een keertje oversloeg. Ik wil Pieter bedanken om me eraan te herinneren dat er buiten de academische wereld ook nog vanalles te beleven valt en voor die lekkere vegetarische kipstukjes met Teriyaki. Anina wil ik bedanken voor haar openhartigheid inzake vrouwenkwesties en om de girl-power in ons bureau te versterken. Met Saskia is er een nieuwe wind komen waaien door ons bureau. Ik ben heel blij, Saskia, dat we ook nu nog af en toe samen een luchtje gaan scheppen, op een tuinfeestje in Mechelen, of een hele zeebries aan de zee. Ellen, ook al was onze start niet fenomenaal, ondertussen ben jij één van mijn beste maatjes geworden en delen we lief en leed. Maar ik wil jou toch vooral bedanken voor één bepaalde ringmap op de vensterbank van ons bureau, om het vuur brandende te houden en zelfs aan te wakkeren en voor een toekomstdroom die met muizenstapjes werkelijkheid wordt. Emilien, ook wij zijn heel erg naar elkaar toegegroeid sinds jij op ons bureau bent aanbeland. Ook al ben je een snotneus die amper zo oud is als mijn kleine zusje, ik kan met jou praten over dingen waar veel mensen zelfs niet over nadenken en dat is een zalige verademing. Karen, jij bent een beetje de mama van ons bureau: Altijd begaan met iedereen en je staat altijd klaar met een luisterend oor, een helpende hand én een schuif vol chocolade. En, oh ja, ik wil jullie ook bedanken voor de danspauzes (Justin love!). Dankjewel aan jullie allemaal om van ons bureau een echte thuis te maken. Ik neem heel veel warme herinneringen mee aan het bureau op het tweede verdiep, eerste deur links en dan nog eens links.

De vakgroep sociologie is zo'n werkomgeving waarvan je denkt: "Het is hier zo goed, dat een volgende job dat zeker niet kan evenaren." De sfeer onder de collega's is

fenomenaal, de feestjes zijn eindeloos en de lelijke kantjes van competitie worden de kop ingedrukt met samenwerking. Ik wil een aantal mensen in het bijzonder bedanken: Koen, voor zijn onuitputbare hulpvaardigheid, niet alleen in statistiek maar ook voor eender welk informatica-probleem. Josephine, om de oefening te maken om samen met mij niet alleen het vrijgezellenleven, maar ook het leven in het algemeen te herevalueren, om mij op het juiste moment het juiste boek aan te raden en voor motiverende middagpauzes in de Romain Roquette. Pieter, voor het relativeren van de academische kermis en voor Dudal en de rust en gezelligheid die daaraan vasthangt. Dimi, voor de zeer leuke babbels en de mini-verzetsbeweging die mij hielp alles te overleven. Vera, voor alle pogingen om mij in beweging te krijgen, onafhankelijk van of die pogingen effectief waren of tevergeefs. Kaat, voor een andere kijk op de zaak en middagen die mijn batterijen weer oplaadden.

Dan nog de heldinnen van de sociologie, the girls who rule the world, het onbreekbare vangnet doorheen de jaren: Chloë, Els, Sarah T., Susan, Lies en Wendelien. Jullie zijn ongelooflijk. Samen hebben we een open maar hechte circle of trust gevormd die elkaar ondersteunt als het moeilijk gaat en samen successen viert als het goed gaat. Dit is van onschatbare waarde. Ik hoop dat we nog lang zullen samenkomen voor avonden vol complimentenkaartjes, lekkers, congresroddels, avonden die waarschijnlijk toch weer eindigen in gebabbel over seks.

Een speciaal woordje komt er nog voor twee van die heldinnen: Chloë en Wendelien. Chloë, onze babbels zijn cruciaal voor mij. Jij bent één van de mensen die mij leert dat niets belangrijker is dan je hart en gevoel volgen en genieten van het leven. Ik vind het zalig dat jij mij in van alle levensvraagstukken wil betrekken en dat ik ook echt met alles bij jou terecht kan, voor een uitgebreide analyse van een situatie of gewoon een knuffel of een snelle bevestiging. Wendelien, waar moet ik beginnen bij jou. Onze vriendschap is ongelooflijk gegroeid tijdens onze tijd in de Korte Meer. We zijn elkaars steun en toeverlaat, voor om het even wat er scheelt. Ik wil je ongelooflijk bedanken voor de juiste raad die ik telkens weer in de wind sloeg, en dus ook voor oneindig veel geduld, voor al die avonden Game of Thrones en, oh ja, voor die lekkere kaasfondu.

Ook Carine, Deborah, Sven, Virginie, Gwenda, Bruno en Eva wil ik heel erg bedanken. Niet alleen voor de administratieve ondersteuning maar ook voor de vele aanmoedigingen doorheen mijn traject.

Maar de collega's van de vakgroep sociologie zijn niet de enige collega's die ik wil bedanken. Het Validiv-team heeft ook mijn stoutste dromen waargemaakt én

overtroffen. Jullie hebben mij doen en waarschijnlijk ook zien groeien op professioneel vlak. Orhan, toen ik begon op het Validiv-project, zette jij je eerste stapjes als coördinator. Door mij toe te laten dat van dichtbij te volgen, heb ik daar ook heel veel uit geleerd. Bedankt ook voor de inspirerende babbels en de goede raad, niet alleen op professioneel vlak. Sven, bedankt voor jouw encyclopedische kennis van het onderzoek over meertalig onderwijs en voor de warmte die je altijd uitstraalt. Ilona, het was heel fijn samen te beginnen op het Validiv-project. Ik herinner mij nog lunchkes in de Brug waar we allebei beseften dat we aangekomen waren in de “grote-mensen-wereld” en hoe raar dat allemaal voelde. En kijk ons nu eens! Lore, je was al een fijne collega en de samenwerking in het Validiv-project heeft dat gevoel bij mij nog verder versterkt. Ik vind het leuk te zien hoe authentiek je blijft, ook al sta je nu een trapje hoger dan ik. Evelien, dankjewel voor dat terrasje bij de Perroquet waar ik aangekomen was met het idee “Dat doctoraat, ik zie het niet meer zitten” en vertrokken ben met “Oh, wauw, Evelien en ik gaan een paper samen schrijven”. Ik vond het superfijn om samen te werken en vandaag het resultaat van ons gezamenlijk onderzoek al te mogen voorstellen. Een andere collega waarmee ik ook die synergie van samenwerken heb gevoeld is Lies, onze samenwerking is heel vruchtbaar gebleken en ik ben heel trots op het resultaat. Ook wil ik Lies bedanken, samen met Kathelijne voor een heel fijne week op onderzoeks-retraite in Limburg. Ik zie ons nog wandelen met ons stomend hoofd tussen de appelbomen, fijne herinneringen! En dan Kathelijne, mijn thuisadres in Leuven. Ik heb altijd gevoeld dat ik welkom was. Jij bent zo’n warm persoon en ik vind het zalig om mezelf te komen warmen bij jou. Ook wil ik even zeggen dat de schattige mannetjes op de cover van mijn doctoraat geïnspireerd zijn op de taalprofielen die Kathelijne heeft afgenomen bij haar focusleerlingen. Ik ben enorm blij dat ik die taalprofielen mocht gebruiken en kijk eens hoe mooi het resultaat is! Jill, we zaten een beetje in een andere kadans, maar ik heb me heel erg gesteund gevoeld door jou op het einde van mijn gevecht met het monster dat mijn doctoraat soms was. Dankjewel. Vicky, de eerste jaren hebben we veel samengewerkt aan de Validiv-instrumenten waar we nu allemaal zo trots op zijn. Ik herkende veel van mijzelf in jou, in hoe jouw gedachten soms alle kanten opschoten. Ik heb echt heel fijn met jou samengewerkt. Merci! Iris, ik herinner mij nog die middag op een bankje op de Kalandeborg dat jij me vertelde dat je ging solliciteren op het SDL. Zo fijn om achteraf ook écht collega’s te worden. Ik wens je toe dat je in je volgende projecten je volle potentieel kan ontplooiën. Kirsten, jij kwam later bij de Validiv-familie maar integreerde je heel snel. Je energie kent geen grenzen en ik heb heel goed met jou gelachen. Kan je straks nog eens een gek gezicht trekken? Ik vind dat zo grappig. Evita, ik ben gewoon heel blij dat wij elkaar zijn tegengekomen

tijdens het Validiv-project en ik geniet enorm van wandelingetjes aan de zee, zondigen met hutsepot en boerenworst en babbelingen bij jou in de zetel. En van het uitladen van je vaatwas natuurlijk.

Dan het dreamteam van een ander soort onderwijs: Ellen, Souad, Amina, Rashida, Amal, Naïma, Els en Walter. Bij het schrijven van mijn doctoraat miste ik soms maatschappelijke relevantie en actie. Bij jullie kon ik dat ruimschoots compenseren, met een schitterende studiedag bijvoorbeeld. Ik heb heel veel bijgeleerd, over de echte wereld, dingen die ik nooit geleerd zou hebben als ik niet in dit avontuur gestapt was met jullie. Dankjewel om samen met mij dit pad te bewandelen en te verkennen.

Naast mensen die mijn professioneel leven meer kleur hebben gegeven, stonden er ook veel mensen daarnaast klaar. Om mij te kalmeren als ik over mijn toeren was, om mij te helpen en om samen met mij te ontspannen.

Ten eerste zijn dat de vriendinnen van de sociologie, Anne, Claudia, Hadewijch, Lore en Lisa. Avondjes met jullie waren altijd zalig rustig. Ook al heb ik daar te weinig gebruik van gemaakt, ik heb heel erg gevoeld dat jullie voor mij klaarstonden. Dankjewel.

Marlies, mijn maatje sinds altijd. Aan jou kan ik alles kwijt en jij veroordeelt mij ook niet als ik dingen doe die ik beter niet zou doen. Je staat me bij met raad en daad. Ook al zien we elkaar niet veel, met jou kan ik nadenken over het grotere plaatje en dat doet deugd. Heel erg bedankt om jezelf te zijn, en voor goede afspraken, want goede afspraken maken goede vrienden.

Stijn, ik denk dat jij de tijd van mijn doctoraat niet gemakkelijker hebt gemaakt, maar ook dat ik door jou meer heb geleefd tijdens mijn doctoraat. Ik wil je bedanken voor alle rust, en dat was heel veel rust en om mij te tonen dat ik eigenlijk alles ook bij mezelf kan vinden.

De vriendinnen van de school, onder andere Els, Anne, Mieke, Patricia en Marjolein, zijn de straffe madammen die mijn hand vasthielden op het moment dat ik op zoek ben gegaan naar die rust in mezelf. Ik denk dat ik samen met jullie misschien wel meer bijleer dan met heel dit doctoraat samen. Dames, het is heerlijk samen onderweg te zijn met jullie.

Luego, los amigos que tengo lejos: Flor, Carola y Younes. Es muy raro estar tan cerca emocionalmente a personas que estan tan lejos y que no veo mucho. Talvez no se den cuenta de lo importante que son las charlas por el face, por eso les digo ahora: para mi

son super importantes y aunque no nos vemos mucho, siempre les tengo presente en mi mente y en mi corazón. Gracias por seguir estando, a pesar de la distancia.

Almost last, but certainly not least are my dearest friends, Olga and Angel. These two girls are the ones that keep me on track, are the ones that when I am lost bring me back to where I was going, you are the ones that keep my ambition sharp and present. Travelling with you is amongst the best memories of my life. I am so very happy to have met you and the fact that you are traveling all the way to Belgium, means so much to me. Thank you.

Dries, ik heb geen ochtendhumeur en ik loop nooit verloren, behalve met jou. Lieve schat, dankjewel om er te zijn voor mij. Je hebt (jammer genoeg) al veel kansen gekregen om je te bewijzen als goed lief en je bent met glans geslaagd voor de test!

Dan komt mijn moekske. Lieve, lieve, lieve moeke, jij bent misschien wel de persoon die vandaag het meest trots op mij is. Ik ben blij dat je er vandaag bij bent. Het enige wat jij al die tijd hebt herhaald is "Je hebt het altijd al gekunnen, dus je zal dit ook wel kunnen". En kijk nu, je had weer eens gelijk!

Mijn lieve zusje, Nika. Hopelijk lukt het om bij mijn verdediging aanwezig te zijn. Ik heb mij echt in bochten gewrongen om jou erbij te hebben, zelfs een mailtje gestuurd naar Joana om de datum van de publieke verdediging te verzetten achter de rug van Mieke om. Ik weet dat ik jouw grote voorbeeld ben, maar ondertussen voel ik dat de rollen omgekeerd zijn. Nu is het mijn beurt om jouw voorbeeld te volgen en van het leven te genieten. Bedankt om ook mijn voorbeeld te zijn, en Christiaan, dankjewel om zo goed voor mijn voorbeeld te zorgen.

Om af te sluiten, de twee belangrijkste mensen in mijn leven: mijn mama en mijn papa. Ik zou jullie voor alles kunnen bedanken, voor mijn 10 tenen en 10 vingers, voor het licht in mijn ogen. Ik dank mijn mama om te koken voor onze retraite in Hoeselt en om de dingen te onthouden die ik vergeet, en mijn papa voor al het werk dat is gekropen om van mijn doctoraat iets aangenaam leesbaar en mooi te maken. Maar vooral bedank ik jullie allebei om jullie oren open te houden. Om er te staan op die momenten dat ik om hulp geroepen heb, soms heel luid, maar soms ook heel stilletjes. Jullie geven mij een warme thuis, waar ik altijd naar kan terugkeren. Dat geeft mij de vrijheid om er voor te gaan in het leven, risico's te nemen, nieuwe dingen te proberen, want ik weet, als ik tegen de grond ga, zijn jullie er altijd en onvoorwaardelijk om mij weer recht te helpen. Dankjewel.

Part 1

Framing the research

1. Introduction

Migration and globalization have caused societies to become more diverse than before, which has also consequently increased the diversity in languages in any given area. This linguistic diversity is mirrored in education, insofar as children bring a wide variety of home languages to school. The importance of language for education is twofold. On the one hand, language is a very important tool in the learning process since it is one of the main media used to make sense of our surroundings (Vygotsky, 1978). On the other hand, languages form part of our identity (Rampton, 1995) and our well-being depends on that identity, and thus our languages, being accepted by others (Cummins, 2001). Therefore, it is important to think about how schools can adapt to the particular needs of pupils bringing a variety of languages to school, in order for them to feel welcome at school and for them to get the maximum out of their assets – to learn to their full potential. For teachers, however, this growing diversity is not always easy; many teachers wonder about how to handle multilingualism in their classrooms (McLaughlin, 1992). Currently, many teachers simply rely on common sense and mainstream ideologies which motivate them to ban multilingualism from the classroom and only focus on the language of instruction (Gogolin, 2002). However, not including pupils' home languages in school might have detrimental consequences for their learning process and well-being at school (Cummins, 2008b; García, 2013). When multilingual pupils are not allowed to use their home languages, they are not able to build on the knowledge they already possess for further learning. Moreover, their identity is not fully welcomed at school (Cummins, 2001).

Earlier sociolinguistic research has described, through small-scale qualitative methods, how teachers manage multilingualism in their classrooms (e.g. Blommaert, Creve, & Willaert, 2006; Creese & Blackledge, 2011). However, few large-scale studies analyze the characteristics of the school when considering multilingualism in education, even though characteristics of the school have been found to be important for a wide variety of outcomes in both teachers and pupils (Teddle & Reynolds, 2000). School effectiveness research has focused on school effects as a research topic, but not yet on multilingualism. Therefore, the goal of this dissertation will be to look at the consequences and determinants of the way Flemish school teams handle multilingualism, with a special focus on what happens at the level of the school. The consequences of the way multilingualism is managed at school for learning and well-being are suggested in sociolinguistic research, but have not yet been related to school characteristics such as the school's pupil composition or teaching practices shared at the school level using a

large-scale quantitative dataset. Additionally, research on the determinants of how teachers handle multilingualism at school is not fully established yet. More research is needed into the determinants both on the level of the teachers and on that of the school. This dissertation adds to this rather new field. Furthermore, we evaluate the effects of an implementation that was especially designed to change those teaching practices towards multilingualism.

This dissertation consists of three parts: the framing of the research, empirical studies and a conclusion. We start the framing of the research by exploring two fields of research, namely sociolinguistic research about multilingualism in education and school effectiveness research, since both fields provide insights for the research goal. We subsequently elaborate on the research context and the specific implementation that will be evaluated in this dissertation. Then, the fields of school effectiveness and sociolinguistics are combined in a conceptual model. This model is detailed in the methods section and translated into an operational model. In the second part of this dissertation, five empirical studies are presented. Every study takes a different part of the research aim into account. They are presented in the format of scientific articles, two of them are published in international scientific journals, the other three were still in the reviewing process when this dissertation was printed. In the concluding part of this dissertation, the results of the empirical studies are related to the general conceptual model and recommendations for both future research and policymakers are provided.

2. Two fields of research

Flows of migration encompass a wide variety of countries of origin around the world (Vertovec, 2007). This has a profound impact on their new countries of residence, particularly on the educational system in those countries. Schools accommodate pupils with a variety of home languages, which results in a mixture of languages in today's classrooms. Teachers feel insecure about this increased linguistic diversity and often do not know how to handle the multilingualism in their schools (Gándara, Maxwell-Jolly, & Driscoll, 2005). Sociolinguistic research has looked into teachers' beliefs concerning multilingualism and how these are translated into classroom practices that affect pupils (Creese & Blackledge, 2011; Hélot, 2012). In what follows, we will discuss findings in the field of sociolinguistics and will point at some caveats in this research. Then, the research field of school effectiveness research is presented, as this field might fill some of the blind spots in sociolinguistic research on multilingual education.

2.1. Sociolinguistic research about multilingualism in education

2.1.1. The social aspect of language

Sociolinguistics studies the relationship between language and society (Holmes, 2001), since languages develop in interaction with the context of their use. Language varieties influence the way we perceive the world, and, vice versa, language is a mirror of the world we live in (Sapir, 1949; Schieffelin & Ochs, 1986). The word 'fireman' for example, mirrors the belief that people working in the fire brigade should be men, while recently 'fire fighter' is seen as a more suitable word. Not accidentally, this linguistic change corresponds with the feminist struggle for equal rights for men and women. At the same time, our perceptions might be influenced by this vocabulary use as well, as women would probably feel they fit better into the category of fire fighters than that of firemen.

Amongst others, one of the key foci in sociolinguistic research is that of language practices. Those language practices mirror social interactions and stratification. Various groups in society use different languages and language varieties. These differences are often used by dominant groups in society to exclude others from power positions and thus translate in diverse opportunities in society, and by extension in school.

In what follows, we present three theories on how language practices link with social interactions and stratification, which can all be translated to the context of the school. Speech accommodation theory (Beebe & Giles, 1984) describes how people use language to include or exclude others in social interactions. Think about a professor talking to a plumber. If the professor is proficient in various linguistic codes, he or she has the power to exclude the plumber by using a very complex, abstract linguistic code, or he or she can choose to communicate a message of inclusion by using the same linguistic code as the plumber is used to speaking. This theory can be applied to the context of the school: School teams differ in their preparedness to accommodate to multilingual pupils. By prohibiting pupils from using their home language at school, school teams, backed by language policies and mainstream ideologies, use their power to exclude multilingual pupils from the school context.

This situation can further be framed using the theory on the economy of symbolic exchange (Bourdieu, 1977), which states that people's language use can be explained by taking the legitimacy of a certain way of speaking in a certain setting into account. The way people speak also depends on their social class, i.e. people acquire a certain language repertoire that is typical for the social class they belong to. The repertoire of the

higher social classes is generally perceived as the prestigious, legitimate, neutral and objective norm for interaction and learning in more formal settings. At the same time, the language repertoire of people from lower social backgrounds is generally perceived as less prestigious, less legitimate or having less value in formal contexts (e.g. like a school). This is interiorized in a person's habitus. These normative beliefs (as part of habitus) about legitimate and illegitimate language repertoires are then exteriorized in societal domains like schools. So, applying this theory to the example of schools prohibiting the use of multilingual pupils' home language, we could say that the dominant language in society has more legitimacy than the home languages of pupils with a migration background. Therefore, this practice of exclusion is broadly perceived as acceptable. This explains how schools act as spaces where social relations and inequality are being reproduced. Considering that the non-dominant class uses a non-dominant language or a language variety not valorized in the school, they get fewer opportunities for social success.

Cummins (1979, 1981) differentiates between basic interpersonal communication skills (BICS) and cognitive academic language proficiency (CALP), which parallel Bernstein's (1973) notions of, respectively, restricted code and elaborated code. Both authors emphasize that both codes are of equal value, but differ in the contexts in which they are most often used. BICS is a code that is used in everyday conversations, while CALP is specifically used for more abstract conversations. Research shows that all children acquire BICS at home, while children from a higher social class come more naturally and more often into contact with CALP in their primary socialization phase than lower social class children (Van Avermaet & Verhelst, 2010). Connecting this theory with the theory on the economy of symbolic exchange (Bourdieu, 1977), we could say that as the linguistic repertoire of the high social class is more legitimate to use in a school setting, these children have more opportunities for school success, while children from a lower social class may experience difficulties at school because of the CALP skills that are not as developed yet when starting school. Cummins (1979, 1981) has applied this theory to bilinguals and states that it takes longer for emergent bilinguals to acquire CALP, while BICS is learned quite quickly. We do not want to suggest that families using another language at home cannot pass on the CALP repertoires to their children, but since SES and ethnic background are highly connected, children from lower social backgrounds who use a non-dominant home language often come into contact with CALP less than children who only use the dominant language at home. Differences in children's competencies in the language of schooling are thus due rather to inequalities in the

legitimacy of different codes than to a deficit in those pupils' acquisition of language. Therefore, it is the duty of schools as emancipatory institutions to question how education is organized and make sure this diversity in codes is taken into account (Van Avermaet, 2008).

2.1.2. Key concepts in research on multilingualism

Distinguishing between categories often does not do justice to the complexities and dynamics of real social spaces, but without categories, a lot of research becomes impossible. This likewise holds when researching multilingualism. To some extent, almost all children are multilingual. Many children use words from different languages – think of terms like 'WAFAs' (We are fucking awesome), or 'Merci' instead of 'Thank you'. Although this type of multilingualism is very interesting to examine, it is not the focus of this study. Therefore, in this dissertation when we categorize a child as being 'multilingual', we mean that the child (also) speaks a language other than the dominant language, in this case Dutch, at home with his/her family members; in many cases this language is determined by the family's migration history. In contrast, we will label children as monolingual or coming from a Dutch-only home situation. This means they did not inherit a different language due to migration.

Multilingualism and bilingualism are very broad and multilayered concepts. In what follows, we start off with two broad views on bilingualism and how those evolved as research continued. Blackledge and Creese (2011, p. 1197) distinguish "separate bilingualism" and "flexible bilingualism". Separate bilingualism is understood as "full competence in different languages" (Blommaert, Collins, & Slembrouck, 2005, p. 199). Languages are seen as fixed and rigid entities used by bilinguals as separate competences, unconnected to each other (Fidler, 2006). This view of separate bilingualism is the dominant ideology in society (Blommaert et al., 2005), while the view of flexible bilingualism receives more support in sociolinguistic research (Creese & Blackledge, 2011). Flexible bilingualism sees languages as fluid and changing (Creese & Blackledge, 2011). In this view, the different languages are seen as integrated and result in a "simultaneous use of different kinds of forms and signs" (Creese & Blackledge, 2011, p. 1198). What is important in this view is that a person's linguistic repertoire is constructed based on his/her lived experiences. A person who, for example, has been raised in Dutch may have acquired a high professional competence in English and may occasionally use Italian to order a prosecco when on holiday. The term "truncated

multilingualism” can be used too, which implies “the linguistic competencies which are organized topically, on the basis of domains or specific activities” (Blommaert et al., 2005, p. 199). This thus results in varying degrees of competence in different languages (Blommaert & Backus, 2012) and parallels García’s (2009) notion of “dynamic bilingualism”.

Starting from the notion of flexible multilingualism, Garcia advocated the usage of the term “translanguaging” over that of “codeswitching” (Garcia, 2013). She defines translanguaging as “the act performed by bilinguals of accessing different linguistic features or various modes of what are described as autonomous languages, in order to maximize communicative potential” (García, 2009, p. 140). The term of “translanguaging” is optimally suited to multilingual realities, as it conceptualizes multilingual people as using different languages in a simultaneous and integrated way. Codeswitching, on the contrary, maintains the view of strict boundaries between languages, as it literally views multilingualism as a double monolingualism – as if one flicks a switch to turn one language off and the other on (Myers-Scotton, 2009).

2.1.3. Various types of multilingual education

The term multilingual education is used in a variety of ways and has become more and more of an umbrella term. A distinction can be made between at least four types. Firstly, language awareness programs focus on the positive attitudes of pupils towards linguistic diversity without the direct goal of teaching new languages to pupils or supporting learning by the use of their full linguistic repertoires. Secondly, in mother tongue instruction, the migrant language is taught as a subject in its own right and, thirdly, in bilingual education, migrant languages are used as media of instruction in the different subjects alongside the majority language (Van Avermaet & Sierens, forthcoming). The fourth type of multilingual education is functional multilingual learning, which is strongly rooted in the context of superdiversity, where education in which two different languages are integrated is simply no longer sufficient. In this dissertation, we focus on the latter, since the context of our study is also one of superdiversity.

Different programs of bilingual education exist and they are inspired by different orientations (for overviews of the different models see Busch, 2011; García, 2009; Sierens & Van Avermaet, 2014; Van Avermaet & Sierens, forthcoming): , for example subtractive bilingualism, additive bilingualism, and trans-languaging. Bilingual education starting

from subtractive bilingualism (Lambert, 1975) is directed at transferring multilingual pupils to monolingual education as quickly as possible (García, 2009). It does not aim at maintaining the knowledge of the home language of these pupils. It is also called transitional bilingual education, which starts by using the home language of pupils as a tool for learning, but then diminishing its use over time. It ends up in monolingual education in the dominant language without support of the pupils' home languages. This can be applied in a situation of submersion in the dominant language with pull-out classes. In this model, multilingual pupils are part of the monolingual classroom, where they are pulled out several hours per week, in order to support the monolingual setting using their home language. The focus of this model is only on the dominant language; no importance is given to the maintenance of the pupils' home languages in the mainstream class.

The second orientation in bilingual education starts from the idea of additive bilingualism (Lambert, 1975). Those programs have the ambition to maintain both the home language of multilingual pupils and the dominant language (García, 2009). This is the case in, for example, prestigious bilingual education. In such programs, pupils acquire a language, often one of higher prestige, in addition to their home language. The method that is most often used is one of immersion, in which pupils are only allowed to use the target language in the classroom.

García (2009), however, states that the aforementioned types of bilingual education are outdated. Her main critique is that these types start from the belief that a strict separation between languages is necessary to provide bilingual education in a successful way, while research shows that this idea does not parallel the classroom reality (Creese & Blackledge, 2011). Instead, she advocates the idea of translanguaging in bilingual or multilingual education contexts. This idea is implemented in programs such as two-way immersion programs in which the two target languages are considered equal and both are used to support each other's mutual acquisition (Van Avermaet, 2015).

Sierens and Van Avermaet (2014) broadened this idea to suit a context of superdiversity in which it is hard to select two or three languages in order to set up a multilingual program. They propose functional multilingual learning as a solution, whereby pupils' home languages are seen as didactic capital, a foundation upon which they build further knowledge and skills. In this method, the teacher does not need to know the home languages of all pupils in the classroom, but rather facilitates the learning process by showing pupils how they can employ their home languages for learning.

2.1.4. Language ideologies

Language practices and policies (e.g., multi-or monolingual education as discussed above) do not happen in a vacuum. They are socially constructed and influenced by language ideologies. Language ideologies are used to discriminate against people specifically because of their usage of language (Creese & Blackledge, 2010; Gal & Irvine, 1995; Schieffelin, Woolard, & Kroskrity, 1998; Shohamy, 2006). Silverstein sees language ideologies as “sets of beliefs about language articulated by users as a rationalization or justification of perceived language structure and use.” A key part of this definition is that language ideologies are “sets of beliefs” (Silverstein, 1979, p. 193). Rumsey (1990, p. 346) defines language ideologies as “shared bodies of commonsense notions about the nature of language in the world,” thereby emphasizing that those notions are widespread. Another important aspect is the non-neutrality. Silverstein (1979, p. 193), for example, uses the word “justification” and Irvine (1989, p. 255) talks about “loading”. Language ideologies function as a justification of social hierarchies and exclusion.

Irvine and Gal (2000) identified three processes in which language ideologies function. Firstly, iconization uses the language variety of a group to form an image of the nature of that group. If a group uses very neat, formal language, this influences the image we form of the group. Secondly, fractal recursivity is a specific form of iconization used for the inclusion or exclusion of people from a certain group. Although people might use the same language, small linguistic differences might be used to exclude people from certain groups. An example of this process can be seen in Argentina, where the inhabitants of Buenos Aires use a specific language variety. Because of the use of a different language variety, the nationality of people from the provinces of Argentina is questioned and they are often excluded from the group of so-called “real Argentinians”. Thirdly, erasure allows facts that are inconsistent with linguistic expectations to go unnoticed. Willaert and Creve (2005) showed how literacy in the mother tongue of a migrant boy was disregarded by teachers, who considered him illiterate because he could not yet read or write in the language of instruction.

One of those language ideologies is the ideology of homogeneity (Blommaert & Verschueren, 1991). This ideology has developed simultaneously with migration flows, as they put pressure on the ideology of a nation-state being linguistically and culturally homogeneous. Since nation-states are framed as being homogeneous wholes, diversity is seen as a threat. This ideology leads to practices in which linguistic diversity is

discouraged. For instance, language restrictions complicate the entrance to and chances in official administration, social housing, the labor market and education (Blommaert & Van Avermaet, 2008). People are excluded through processes of fractal recursivity as they are not hired for a sales job because of their foreign accent, or through processes of erasure when non-EU diplomas are not recognized and when doctors, for instance, are forced to work as nurses.

2.1.5. Language ideologies at school

In the context of the school, three language ideologies are of importance: the ideology of separate bilingualism, the hierarchy of languages and the monolingual ideology. In this section, these ideologies are elaborated upon and then the consequences of these ideologies are looked into.

A first language ideology that is often present when bilingual education is considered is the ideology of separate bilingualism. That ideology can be found in programs starting from a subtractive and additive orientation. Teachers are convinced that it is better to keep languages separate in order to secure pupils' progress in learning a language (Creese & Blackledge, 2011; Pulinx, Agirdag, & Van Avermaet, 2014). Cummins (2008) calls it the "two solitudes hypothesis". According to this hypothesis, language learners are supposed to acquire a new language in the same way as they acquired their first language. The acquisition of the target language is to be accomplished without the support of the first language, as both languages need to be strictly separated. In his work, Cummins (2008a) contests this view as he states that the activation of prior knowledge is very important in the construction of new knowledge and that the proficiency in different languages is interdependent. He states that in this way, the acquisition of one language will reinforce the acquisition of the other, resulting in a positive effect for both languages when both are part of the learning process.

The ideology of the hierarchy of languages starts from the differences in languages' social status. Languages are indicators of status (Beebe & Giles, 1984; Blommaert & Verschueren, 1991). Rather than being inherent to a language, the status of the language depends on the context in which people find themselves (e.g., Extra & Yagmur, 2004), as also stated in the theory of economy of symbolic exchange (Bourdieu, 1977). The status of languages is not linked to the complexity or correctness of ways of speaking but rather to the link of certain languages or language repertoires with social groups (Beebe

& Giles, 1984; Bourdieu, 1992). The status of language cannot be seen independently from its relation with ethnicity and socio-economic status (SES) (e.g., Beebe & Giles, 1984); languages used by people from low societal status will also be perceived as lacking prestige. This results in a situation of “good” and “bad” multilingualism in schools (Blommaert & Van Avermaet, 2008), in which languages such as French and English are considered of high prestige and encouraged to learn, while languages such as Moroccan or Polish are seen as less prestigious and useless for pupils’ learning. Since most bilingual pupils in Flemish schools are of low SES descent, they face a situation in school in which their home languages have low prestige and are thus not welcomed, which in turn can influence how they feel about school and about themselves.

Pupils with home languages of low prestige also experience a third ideology at school, which is strongly linked to the ideology of homogeneity (Blommaert & Verschueren, 1991): the ideology of monolingualism. Since multilingual pupils’ “bad” multilingualism is seen as harmful for their development and learning (Gogolin, 2002), this ideology leads to teaching practices that ignore the multilingual skills of a lot of pupils. Gogolin (2002) states that teachers often act out of a monolingual habitus. They strongly believe that it is in the best interest of children to invest as much time as possible in the dominant language, without allowing any support from the pupils’ home language(s) (Van den Branden & Verhelst, 2007). Teachers’ beliefs and behavioral patterns presume a monolingual, monocultural reality in pupils (Bourdieu, 1977; Gogolin, 2002). Agirdag (2010) found that pupils (14 to 17 years of age) internalize these ideas. Both native monolingual and bilingual pupils with a migration background labeled home languages other than the dominant language as obstacles to success. This might influence their well-being since they might feel bad about having another home language than the dominant language or they might develop a difficult relationship with the school.

These language ideologies have two important consequences:

1. Many children’s prior knowledge is not utilized as a tool for learning (Sierens & Van Avermaet, 2014). The monolingual ideology in education denies the advantages of this prior knowledge in the acquisition of new knowledge (Cummins, 2007). However, language is an important tool for learning (Vygotsky, 1978) and the better the first language skills of a child, the better second language skills can be developed (Goldenberg, 2010). Due to the strong belief in monolingualism, translations to the mother tongue of pupils are seen as undesirable (Cummins, 2001; 2007; 2008) and in the case of multilingual

education, different languages are preferred to be strictly isolated (Creese & Blackledge, 2010, Cummins, 2001; 2007; 2008). Theorizing about how multilingualism is handled in schools thus brings us to state that a monolingual ideology might not be in the best interest of multilingual pupils' learning. However, generalizable evaluations of multilingual education are scarce, since research has been conducted in very specific contexts and often suffers from methodological problems (Sierens & Van Avermaet, 2014). Still, multilingual education programs have been found not to jeopardize pupils' language development (Ramaut, Sierens, Bultynck, et al., 2013; Slavin, Madden, Calderón, Chamberlain, & Hennessy, 2011) and enhance pupils' well-being at school (Ramaut, Sierens, Bultynck, et al., 2013; see also following section) which might – in the long run - have an enforcing effect on pupils' learning.

2. The second consequence of the belief that prior knowledge of certain languages is useless in the learning process (Blommaert et al., 2006; Willaert & Creve, 2005) is that the identity of multilingual children is not welcomed as much as other children's and this might affect their well-being. As Cummins (2001, p. 19) remarked: "To reject a child's language in the school is to reject the child." The languages that children speak are part of their identity. By accepting languages in the classroom, affective obstacles tend to disappear and children gain self-confidence and achieve better (Auerbach, 1993; Jones, 2010; Ramaut, Sierens, Bultynck, et al., 2013).

Although a large proportion of teachers are strongly influenced by the aforementioned ideologies, there are other teachers that are not determined by these ideologies and still reject them (for USA e.g. English & Varghese, 2010; for Chile e.g. Galdames & Gaete, 2010). Teachers are exposed to influences at macro, meso and micro levels (Pulinx, Van Avermaet & Agirdag, 2016; Ricento & Hornberger, 1996). At the macro level, national language policies and mainstream language ideologies might prescribe how teachers should manage pupils' multilingual repertoires. Pulinx and colleagues (2016) found that as much as 77% of Flemish teachers agreed that non-Dutch-speaking pupils should not be allowed to speak their home language at school, a belief that strongly mirrors the ideology of the Flemish government. Nevertheless, this also means that 23% of teachers do not support the official policy (Pulinx, Van Avermaet, & Agirdag, 2016). On the meso level, the school context can influence teachers through differences in school vision and

teacher team characteristics, such as the language beliefs expressed by teacher colleagues (Ricento & Hornberger, 1996), although this level is not yet focused on in sociolinguistic research on multilingualism. Teachers in very mixed schools might be additionally affected by the extra teacher training focusing on diversity that is often provided in these schools (Tatar & Horenczyk, 2003). It might therefore be that teachers in more diverse schools think more positively about multilingualism. At the micro level, every teacher brings different life experiences to school (Ricento & Hornberger, 1996). A rather small proportion of teachers might have experience with multilingualism in their own home context while others do not. Therefore, a lot of teachers were raised monolingually and are strongly influenced by the monolingual ideology, which is why many of them develop a monolingual habitus (Gogolin, 2002). This perspective including different levels of influence clarifies why teachers always possess some capacity to oppose to the philosophy of both macro and meso levels (e.g. Shohamy, 2006).

Various innovative projects concretely aim at including multilingualism (e.g. Bourne, 2001; Maraillet, 2005; Ramaut, Sierens, Bultynck, et al., 2013; Saudan, 2005). These projects indicate their power to influence teachers' beliefs and classroom practices. In terms of the methodology for studying teachers' behavior in these projects, researchers have mainly focused on qualitative methodologies such as observations (Bourne, 2003; Maraillet, 2005; Ramaut, Sierens, & Bultynck, 2013), teachers' diaries (Fidler, 2006; Saudan, 2005) and interviews (Ramaut, Sierens, & Bultynck, 2013). Some projects also include quantitative results, but samples are mostly small, providing insufficient statistical power for an analysis of school effects (e.g. Blondin & Mattar, 2004). Generally, no control schools or pretest is included (for an exception see Ramaut, Sierens, & Bultynck, 2013).

2.1.6. How sociolinguistics and school effectiveness research can complement each other.

Sociolinguistic research has shown how multilingual children use their linguistic repertoires in a natural and integrated way (e.g. Jorgensen, 2005). Although pupils might be studying in a monolingual context, this does not necessarily mean that they think, and thus learn, in a monolingual way (Busch, 2010). Since the ideologies of monolingualism and multilingualism in terms of parallel monolingualisms are very strong in many schools, practices of translanguaging are often seen as a deficit (Heller, 1999). Insights about how multilingualism works have led scholars like Ofélia García

(2009) and Jim Cummins (2001) to theorize about the integrated use of pupils' multilingual realities in education.

From previous scientific work, we know that many teachers have translated their language ideologies into language practices (often mediated by overt or covert language policies) by emphasizing the importance of separating different languages for instruction and excluding some linguistic resources from the learning context (e.g. Blommaert, Creve, & Willaert, 2006; Heller, 1999). However, less has been said about the variation of such practices and their consequences for pupils across different school contexts considering that most of what we know today about how multilingualism influences the school context is discovered through case studies (e.g., Martínez-Roldán & Malavé, 2004), ethnographic fieldwork (e.g., Gutiérrez, Baquedano-López, & Tejada, 1999), discourse analyses (e.g. Dooly, 2005) and in-depth interviews (e.g. Blommaert et al., 2006). Qualitative studies have given us more understanding about what happens inside classrooms and what processes can be observed in schools as a result of language beliefs.

Sociolinguistic research has added to scientific knowledge in several educational domains: Research has been conducted about language use in multilingual classrooms (e.g. Creese & Blackledge, 2010) and about ideas people have on learning languages (e.g. García, 2009). But, as Willaert (2012) noted, sociolinguistic research has hardly considered multilingualism in mainstream education. The 'home languages in education' project (Ramaut, Sierens, Bultynck, et al., 2013) in Flanders is an exception. Up until now most research focused on classrooms in bilingual schools (e.g. Olmedo, 2003), extracurricular language schools (e.g. Bonacina & Gafaranga, 2011) or classrooms exclusively for migrant children, where they are taught the majority language as a second language (e.g. Razfar, 2005). Flores and García (2013) do look at mainstream education, but only in schools exclusively for recently arrived Spanish-speaking immigrant adolescents. Since earlier studies have thus mainly focused on non-mainstream education that specifically focuses on the schooling of bilingual pupils, this field of research might therefore benefit from a focus on multilingualism in mainstream schools.

Therefore, it might be interesting to complement this research by focusing on the impact of different aspects of the school context using large-scale quantitative methods – aspects such as the composition of pupil population, shared practices among teachers in schools or the schools' resources – in order to determine how these, independently of each other, affect pupils.

2.2. The field of School Effectiveness Research

2.2.1. The emergence of the field

School effectiveness research (SER) is "... the line of research that investigates performance differences between and within schools, as well as the malleable factors that enhance school performance" (Luyten, Visscher, & Witziers, 2005, p. 249). It consists of three strands of research, of which school effects research was the first to emerge (Reynolds, Teddlie, Creemers, Scheerens, & Townsend, 2000). This first strand is concerned with "identifying school features that correlate with certain outcomes based on large-scale school research" (Agirdag, 2011, p.5, translated from Dutch) and started in the late 1960s. Over the years, school effects research has taken different factors of schooling as its main research topic: the interest in pupil populations in schools turned into a focus on intra-school processes, and the emphasis on cognitive outcomes is slowly moving towards a focus on the integration of non-cognitive pupil outcomes (Reynolds et al., 2000).

From the late 1970s, a second strand of SER emerged: the effective schools research. This strand focused on schools that were effective against all odds. Starting with case-studies of these outlier-schools, the effective schools research started looking for the recipe of an effective school (Ralph & Fennessey, 1983; Reynolds et al., 2000). Nowadays, a combination of quantitative and qualitative studies is used in this strand. An attempt to list the most important features for effective schools was made by Ron Edmonds (1979). He listed five factors for effective schools for the urban poor. An important critique on these studies was that they were blind to context variables, as they only focused on urban, low SES schools (Reynolds et al., 2000).

Out of effective school research, a third strand of SER developed: the school improvement studies (Reynolds et al., 2000). Not only did scholars in this strand want to describe the most effective school thinkable, they also wanted to create it.

Since we will use insights from the first and third strand of SER in our research, those will be elaborated on in the following sections.

2.2.2. School effects research

The emergence of school effects research happened in the late 1960s (Reynolds et al., 2000), when the results of Coleman's study (1966) intensified the concerns about schools

as equalizing and democratizing institutions. The most important conclusion of the Coleman-report was the relatively small influence of a particular school on pupils' results. What really mattered were the pupils' background characteristics. Coleman found the SES composition of the schools to be the most important school feature affecting pupils' achievement. Jencks (1972) refined some of Coleman's findings but did not find an important role for schools either. The pessimistic undertone of both reports resulted in the belief that schools did not matter for pupil outcomes (e.g. Bernstein, 1970) and caused a lower interest in school effects research in some scholars. Other scholars shifted the focus from a mere input-output point of view to the study of processes inside of schools (e.g. Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979). Rather than estimating the effects of the pupil composition, by focusing on intra-school processes, Rutter and his colleagues (1979) uncovered how a cooperative and caring climate between pupils and teachers influenced pupils' achievement. From the 1990s on, researchers were convinced that schools could make a difference. Context variables were introduced into the research models (Reynolds et al., 2000) and the consciousness that good practices depended on the characteristics of a school grew (Thrupp, 1999).

Over the years, the developments in the field of school effects research and new techniques have gone hand in hand. The use of multilevel modelling became common, which facilitated the study of school-level effects (Reynolds et al., 2000). A new development in methodology, structural equation modeling, resulted in a call for a dynamic model in school effects research (Creemers & Kyriakides, 2006; Reynolds et al., 2014). In this dynamic model, non-cognitive outcomes are also included, the relation between independent variables is estimated, and the possibility of curvilinear relationships is always considered.

The CIPO-model was designed in an attempt to capture the complexity of school effects (Scheerens, 1992). The CIPO model consists of four components: context, input, process and output. The first component is the context of the school. Context variables measure the effects of a school's political, economic, social and cultural circumstances (Hulpia & Valcke, 2008). The neighbourhood of a school can also be integrated as a context variable, as can the schools' pupil and teacher composition. The second component is the input the school gets. Individual pupil and teacher variables such as gender, age and SES fit into this category (Hulpia & Valcke, 2008). Thirdly, the processes taking place at the school can be focused upon. By using process variables, researchers have tried to open the black box of what is going on in schools. School climate and culture processes can focus on the support a school gives to its pupils, or the beliefs teachers hold about their

pupils (Hulpia & Valcke, 2008). Van Houtte and colleagues (2005, 2011; 2011) have focused on the topic of teachers' culture. They state that the basic underlying assumptions of teachers are the essence of a school team's culture and if teachers in the same school share their underlying assumptions and beliefs, those can be aggregated to represent the culture of the organization (Van Houtte & Van Maele, 2011). The final component is the output of a school. Cognitive output has been the main focus in school effects research so far, although the interest in non-cognitive output is gaining ground (Creemers & Kyriakides, 2006). This CIP0 model is widely used and supported in the field (Reynolds et al., 2000; Scheerens, 1990).

SER has received criticism about different aspects of the research conducted so far. Firstly, a lively debate exists about how to measure school effectiveness (Coe & Fitz-Gibbon, 1998). According to Coe and Fitz-Gibbon (1998, p. 424), the question "effective in what way?" should be asked, since there are various possible ways in which a school can be effective. In most studies, academic achievement is used as an output variable (e.g. Gaziel, 1997), while studies with non-cognitive outcomes are underrepresented (e.g. Opdenakker & Van Damme, 2000 for well-being; Peetsma, van der Veen, Koopman, & van Schooten, 2006 about academic self-concept). Another element that has to be taken into account when deciding on the way to measure effectiveness is that schools are held responsible for their effectiveness by policy makers (e.g. Thrupp, 2006). Therefore the analysis of school effectiveness has to measure something on which schools at least have an impact. The measurement for academic achievement that is used most often – standardized testing -- is not ideal. Standardized testing is not always a good proxy to measure school effectiveness, since the content and methods of the test do not always match the content and methods of pupils' curriculum (Luyten et al., 2005; Thrupp, 2006). In some cases, these tests rather assess pupils' skills to complete a test, rather than the effectiveness of schools in teaching content to their pupils. Curriculum-embedded tests are suggested to be much more suitable for this purpose, since these evaluate the exact content schools are trying to teach their pupils.

Secondly, SER is being blamed for ungrounded modelling. A great part of SER focusses on confirming the "effective school correlates" (Levine & Lezotte, 1990). Emphasis is laid on statistical significance of variables, while little importance is given to the theoretical building of research models. Suggested solutions are the use of theories of other research fields and the complementing of the merely quantitative modelling with qualitative research (Reynolds et al., 2000; Thrupp, 2006).

Another underexposed aspect in SER models is the teacher and class level (Van Houtte, 2011). In this respect, Creemers (2006) advises school effectiveness researchers to take four levels into account: context, school, class and pupil.

Finally, causality is a great issue in SER (Coe & Fitz-Gibbon, 1998; Luyten et al., 2005). Inappropriate causal conclusions are drawn while few longitudinal studies are performed and theoretic reasoning is lacking (for a remarkable exception see Teddlie & Stringfield, 1993). Claiming schools are different might be more accurate than saying “schools make a difference” (Brookover et al., 1979; Coe & Fitz-Gibbon, 1998).

2.2.3. Research on school improvement

Rather than looking at the school characteristics that ensure pupils’ academic achievement, school improvement research focuses on the processes of change that schools pass through in order to become more effective (Hopkins, 2001). David Hopkins (2001, p. 13) defines school improvement as “a distinct approach to educational change that aims to enhance student outcomes as well as strengthening the school’s capacity for managing change.”

As an emerging field in the early 1960s, the field of school improvement has mainly focused on the adoption of top-down innovations in schools (Hopkins, 2001; Lagerweij, 2000). In these studies, the innovations were strictly regulated without minding the differences between schools. Later, it became clear that top-down models of change did not work. As a consequence, more attention was paid to the extensive process of implementation during the 1970s (Hopkins, 2001; Lagerweij, 2000). In this period, the focus was on developing skills and eliminating obstacles in order to motivate teachers to implement innovations in their classroom practice. From the late 1970s on, attention shifted to the school as an organization that had to function in a healthy way (Hopkins, 2001; Lagerweij, 2000). Schoolwide characteristics became the center of interest, a development that was also stimulated by the growing field of school effects research that collected insight into the characteristics of effective schools (see previous section). From the 1990s on, researchers have progressively participated in innovation trajectories in schools (Hopkins, 2001; Lagerweij, 2000). This phase has brought insight into the different approaches needed for schools in different stages of a developing process.

Research on school improvement has shown that teachers’ mindsets towards innovations are crucial for the implementation process to succeed (Fullan, 2001).

Changing their classroom practice often involves uncertainty and concerns for teachers (Geijsel, Slegers, van den Berg, & Kelchtermans, 2001; van den Berg & Ros, 1999). Teachers who dare to question their own teaching practice and are dissatisfied with the current methods of teaching are found to be more willing to open up towards implementing educational innovations in their classrooms (Gess-Newsome, Southerland, Johnston, & Woodbury, 2003; Stoll, Fink, & Earl, 2003).

Just as pupils need a safe environment to ensure that learning happens, teachers similarly need support in order to move through a process of change and professional development (Harris, 2002). Three aspects of the school environment are important in this respect. Firstly, leadership is an important aspect in the school as a professional environment (Harris, 2002; Hopkins, 2001; House & McQuillan, 2005). Leadership should find a balance between support and pressure (Stoll et al., 2003). On the one hand, leadership should provide teachers with guidance and support as they pass through a challenging process when innovating their classroom practices. On the other hand, leadership should put enough pressure on teachers to keep on experimenting and pushing their limits. A shared leadership involving all actors at school permits all actors to feel involved and motivated (Stoll et al., 2003). Secondly, a constant process of monitoring and evaluating should be implemented at school (Harris, 2002; Hopkins, 2001). This facilitates change to become the norm, not the exception. Thirdly, teachers need an open and trusting work environment in order to gain the confidence to experiment in the classroom (Clement, Slegers, & Vandenberghe, 1995; Harris, 2002; Hopkins, 2001). This can be established by including teachers in the decision making process at their schools, by using open communication, by encouraging positive collegial relations and by providing them with on-the-job teacher development (Harris, 2002; Hopkins, 2001; Stoll et al., 2003).

Focusing on these three aspects of the school environment might enhance schools' capacity to improve. In the past, schools have been accused of being loosely coupled systems, indicating that teachers work alone, isolated in their own classrooms (Hopkins, 2001). This situation is no good starting point for professional development, as it makes it impossible for teachers to learn with and from each other (Stoll et al., 2003).

Schools differ in their capacity to change and their readiness for reform and therefore require different strategies in order to change (Slavin, 2005). Failing schools might need more external support in order to change than moderately effective schools or effective schools that want to remain effective (Hopkins & Harris, 1997). Slavin (2005)

distinguishes between seeds, bricks and sand schools. Seeds schools are in the ideal situation for school improvement: Teachers have an open mind and leaders launch many ideas and ensure a safe environment for teachers to experiment with new methods. In bricks schools, teachers are willing to change but do not directly recognize the need. Change will take effort and time but will be sustained as time goes by. School teams in sand schools are convinced they are already doing a good job, and will therefore rapidly return to the original situation after the implementation of an innovation at their school.

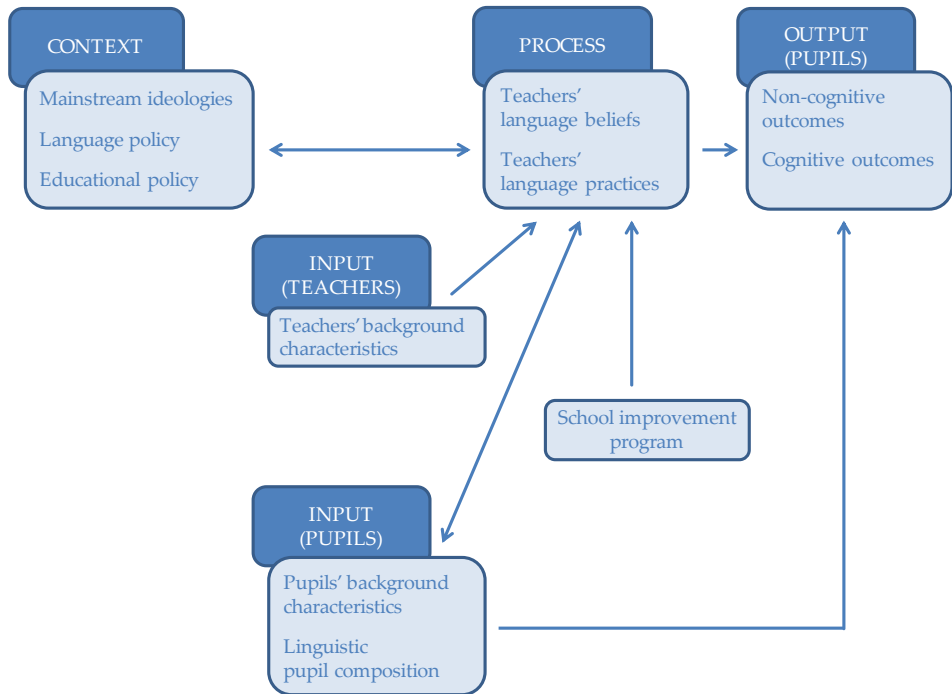
Clearly, no quick-fix solutions exist for schools to become effective and no universal recipe is available to realize that goal (Harris, 2002). Innovation processes are always complex and take a long time, but thanks to school improvement research, these processes are more extensively described and therefore more easily influenced through differing implementation trajectories.

3. An integrated model of research

The merging of school effectiveness research and sociolinguistics offers an opportunity to reach new insights on how language ideologies influence school life.

Based on an integration of the sociolinguistic field and school effectiveness research, an integrative conceptual model was designed. The central focus of the model comprises the determinants and consequences of tolerance towards multilingualism in teachers. Since teaching practices towards multilingualism are often described in qualitative studies (e.g., Blommaert, Creve, & Willaert, 2006; Creese & Blackledge, 2011), this dissertation focusses on their determining factors and consequences, paying special attention to characteristics of the school. This model gives us the opportunity to find out if teaching practices excluding or including pupils' mother tongues from school life are affected by the school's context and if they are associated with both cognitive and non-cognitive outcomes in pupils. It also looks at school characteristics that might influence teaching practices and whether an educational innovation is able to change those practices.

Figure 1: conceptual model



Following the CIPO-logic (Scheerens, 1992), our model adds a new perspective to the research on language ideologies at school. On the one hand, teachers' tolerant stance towards multilingualism is expected to be motivated by school features and by the background variables teachers bring to school. On the other hand, the tolerance towards multilingualism at school is thought of as affecting cognitive and non-cognitive pupil outcomes, which are influenced by the pupils' background characteristics. In what follows, we will elaborate on each of the four aspects of the CIPO-model and their consequences.

3.2. Context

The mainstream ideologies about language and their translations into policies strongly affect how teachers think and behave in the school (Pulinx et al., 2016). Inspired by the ideology of monolingualism, teachers often believe that multilingualism might harm pupils' learning process (Gogolin, 2002). As this research has been carried out in the region of Flanders, the influences of this context could not be compared since no point of reference was available; the context will therefore merely be described.

3.3. Input

Since teachers bring a variety of different experiences to school, there is also logically a wide spectrum of different teaching practices. Teachers who live in or grew up in a multilingual home might be able to relate to multilingual pupils more and therefore act in a more sympathetic way towards their languages. Former research found that kindergarten teachers included the home languages of their pupils more often than primary school teachers (Ramaut, Sierens, Bultynck, et al., 2013). This specific link has not yet been investigated with regard to the factors of gender, teaching experience, and SES, but previous research indicates that less experienced, high SES, female teachers have on average more positive attitudes towards particular groups of pupils (for attitudes towards Muslim pupils, see Agirdag, Van Houtte, & Loobuyck, 2012; for attitudes towards ESL students, see Youngs & Youngs, 2001). The impact of school characteristics rather than teacher characteristics will be the focal point in this dissertation, however, teacher characteristics will be included as important control variables in the empirical studies.

As far as pupils are concerned, school effects research has shown the importance of pupils' background for their outcomes in schooling (Coleman et al., 1966). In general, these background characteristics are found to be far more important than the characteristics of the school. School effects research has primarily focused on academic achievement up till now (Reynolds et al., 2000), but the presented model also includes non-cognitive pupil outcomes. Gender, grade retention, SES and ethnicity are pupil characteristics that have been related with a wide variety of pupil outcomes, such as academic achievement and the relationship with school and peers.

Since sociolinguistic research has focused on small-scale contexts, the impact of characteristics of schools has not yet been focused upon. Yet, it might be interesting to

look at how a school's linguistic composition impacts teachers' stance towards multilingualism. This has not yet been focused on in school effects research, either. As large-scale multilevel analysis enables us to compare a large number of school compositions, our model makes it possible to provide answers to this caveat. We believe that we can expect an effect of the school's linguistic composition on the teaching practices concerning multilingualism. Teachers might expect less of pupils with a multilingual background, due to language ideologies of monolingualism. Agirdag and colleagues (2013) showed that teachability expectations are lower in schools with a high concentration of low SES and ethnic minority pupils. Teachers explained their low expectations largely by referring to pupils' supposed poor language skills in Dutch. Based on these findings, we can expect that the linguistic composition of a school has an effect on teachers' language ideology and language practices.

3.4. Process

School effects research has taught us how to relate the culture of a school with pupils' outcomes (Van Houtte, 2005; Van Houtte, 2011; Van Houtte & Van Maele, 2011): Through aggregation, measurements on the teachers level that are found to be shared at the level of the school can be translated into a teacher culture, which can be understood as a characteristic of the school. Using this technique, the association between teacher culture and pupil outcomes can be estimated.

As sociolinguistic insights have shown the importance of beliefs about language in education, we include teachers' beliefs and practices towards multilingualism as a process variable in the CIPO-model. From sociolinguistic research, we suspect teachers' ideologies of monolingualism to be prejudicial for both pupils' non-cognitive and cognitive outcomes (Aboud & Sankar, 2007; Agirdag, 2010; Cheung & Slavin, 2012; Cummins, 2001), while teachers who practice an orientation of translanguaging in their classrooms, in contrast, might enhance those outcomes. As such, this is an orientation which is more in line with how multilingual pupils use language (Jorgensen, 2005).

These process variables might be influenced by school improvement programs aimed at changing teachers' perspectives and teaching practices towards multilingualism (e.g. Bourne, 2001; Maraillet, 2005; Ramaut, Sierens, Bultynck, et al., 2013; Saudan, 2005).

3.5. Output

Inspired by interactional sociolinguistics, we suspect that language ideologies and policies have the power to influence both pupils' non-cognitive and cognitive outcomes.

On the one hand, teachers' language ideology and practices might influence pupils' non-cognitive outcomes. They might influence the legitimacy of different languages at school (Gogolin, 2002) and how multilingual pupils' relate with school, themselves and their peers: When pupils' home languages are perceived as having a low prestige, this might give multilingual pupils the impression that they are not fully welcomed at school (Cummins, 2001), that they should be ashamed of their home language because it is useless (Agirdag, 2010), and that they are inferior to their peers from Dutch-only homes (Aboud & Sankar, 2007).

On the other hand, teachers' language ideology and practices might also have an impact on pupils' academic achievement. Since multilingual pupils use their full linguistic repertoire in a natural and integrated way (Jorgensen, 2005), being allowed and supported to use them for learning might result in better school results.

4. Research questions

The aim of this research is translated into four research questions which have inspired the empirical studies in the next part of this dissertation. The first focus of this dissertation is on the consequences of the way multilingualism is managed at school for learning and well-being, as both cognitive and non-cognitive consequences are suggested in sociolinguistic research. However, these suggestions are the result of small-scale qualitative research and are not yet related to characteristics of the schools, such as the school's pupil composition or teaching practices shared at the school level using a large-scale quantitative dataset. Two questions are part of this first focus:

1. Do the linguistic composition of a school and teachers' shared practices towards multilingualism influence pupils' non-cognitive outcomes?
2. Do the linguistic composition of a school and teachers' shared practices towards multilingualism influence pupils' cognitive outcomes?

The second research focus is on the factors motivating teachers in their practices towards multilingualism. Research about the determinants of how teachers deal with

multilingualism at school is still rare. More research is needed into determinants both on the level of the teachers as well as on that of the school. The following two research questions aim to fill that gap:

3. In what way are teachers' practices towards multilingualism influenced by the pupil population of a school?
4. Does a school improvement program aimed at changing teachers' practices towards multilingualism reach its goal?

The implementation that will be assessed in order to answer the fifth research question is elaborated upon in the section on the Validiv project (p. 41).

5. Situating the research

This dissertation has been carried out in the region of Flanders, the Flemish speaking part of Belgium. In what follows, we elaborate on the specificities of this context. Then, we focus on the Validiv project, the specific school improvement program targeted at changing teachers' perspectives and practices on multilingualism, which is evaluated in this dissertation.

5.1. The context of Flanders

The region of Flanders is situated in a political climate that ideologized the nation-state as a linguistically and culturally homogeneous whole (Blommaert, 2006). In the struggle to convince every citizen about this ideal, policy regarding language and more specifically, one standardized language was used as a tool. Blommaert and Verschueren (1992) call this ideology the dogma of homogeneity, which they define as "a view of society in which differences are seen as dangerous and centrifugal, and in which the 'best' society is suggested to be one without intergroup differences" (p. 362). This ideology has generated the assumption that diversity makes living together more difficult and has classified all aspects of diversity as undesirable (Gogolin, 2002).

From Belgium's independence (1831) onward, French was the dominant language and the use of the language varieties spoken in Flanders was unthinkable in schools or public administration. In Flanders, the Dutch-only language ideology has a long history and many advocates. For decades, the Flemish fought for more rights for their language (De

Wever, 2003; Van Velthoven, 2011; Wils, 2009). It was only in the 1930s that education, public administration and the legal system became monolingually Dutch in Flanders. A lot of those laws, however, were not enforced in practice. During the 1960s, the Flemish nationalist party managed to realize some demands. French- and Dutch-speaking territories were precisely defined, with only few exceptional municipalities (Van Velthoven, 2011; Wils, 2009; De Wever, 2003). History thus developed a perspective that strongly emphasized the importance of Dutch.

Minority populations might feel the consequences of this Dutch-only perspective in Flemish society (e.g. Blommaert & Verschueren, 1992), since their identity and visibility is at stake in a context of restrictive policies vis-à-vis linguistic diversity. After all, those home languages are one of the markers of their identity. Blommaert and Verschueren (1992) argue that the different identity markers are treated as a feature cluster. As a consequence, the whole identity is questioned when one of the identity markers in the feature cluster is absent. For example, although people might be assimilated on a cultural and religious level and might appear to be a typical member of a certain group, when they miss the language of that group, their whole identity is questioned. In Flanders, Dutch is believed to be an indispensable factor for educational and professional success, while in a lot of situations in the large cities the knowledge of other languages is more useful than that of Dutch. The actual norm in large cities in Flanders is multilingualism (Blommaert & Van Avermaet, 2006).

Although reality shows that Flanders is a multilingual region, the knowledge of Dutch is still key to policies in Flanders (Blommaert & Van Avermaet, 2006). For instance, it is required to show the willingness to learn Dutch before being taken into account for social housing. Dutch language proficiency is believed to be an important aspect of being a member of Flanders (Van Velthoven, 2011; Wils, 2009; De Wever, 2003). Flanders, however, has a very diverse linguistic landscape, with 13.3% of the population being of foreign background (data from 2008) (data, 2011, 2012). More than 16% of the primary school pupils speak a language other than the dominant language at home, and this proportion is still increasing (Crevits, 2015). It is unknown how many inhabitants speak which languages in Flanders (Van Velthoven, 2011; Wils, 2009; De Wever, 2003), although an informed guess can be made from the ethnic background of the inhabitants. The largest groups registered as foreigners living in Flanders are Dutch, Moroccans, Italians, Turks and French (in this order, Brussels excluded, data from 2006) (Statbel, 2012). In Brussels, more than half of the population uses at least two languages at home, with languages other than Dutch or French as strongly growing home languages

(Janssens, 2013). Data from 2000 show that in only 18% of the homes of pupils in the Dutch-speaking schools in Brussels is Dutch the only home language (Verlot, Delrue, Extra, & Yagmur, 2003). Languages besides Dutch that are most often spoken at home are French, Arabic, English, Turkish, Spanish and Italian.

5.2. The Validiv project

The Validiv project (Valorizing Linguistic Diversity in Multiple Contexts of Primary Education) aimed at promoting pupils' learning process by offering space to pupils' home languages at school. The Validiv project was designed on the basis of the notion of "functional multilingual learning" (Sierens & Van Avermaet, 2014). This notion states that pupils' home languages can be utilized as didactic capital. Teachers can allow pupils to use their multilingualism in the learning process, and teachers do not need to know every language that is spoken by the pupils in their classroom. Pupils can learn a lot by looking up information in their home language or interacting with other pupils who share their linguistic background.

As recommended in the school improvement literature (e.g. Hopkins, 2001), the Validiv project has aimed to affect schools at different levels: Both the classroom context and the broader school environment were targeted. Three innovations were implemented: E-Validiv, the Validiv case collection and the Validiv school policy guide. The first two were directed at the classroom level: E-Validiv was a multilingual electronic learning environment that could be used during science class in the 4th and 5th grades. This electronic tool enabled pupils to switch between Dutch and another language at their own pace in order to acquire new knowledge about different topics in science. The Validiv case collection was an inspiring selection of tools that could be applied to everyday class situations. Teachers could select very superficial or very profound classroom changes, depending on their own willingness to experiment. A third tool, the Validiv school policy guide, was concretely intended for coordinating figures at the school level, such as the principal. It was an instrument to screen and change the own school policy regarding languages and thus to open the school towards multilingualism.

The introduction of the three Validiv tools in the schools was based on principles from school improvement research (Guskey, 1988; Harris, 2002; Hopkins, 2001; Stoll et al., 2003). First, there was an introductory talk with the school team where the Validiv tools were presented by the coach. School coaches were provided with a school-specific report

on the overall score of a school based on the data of the first data collection moment (see methods section, p. 49). As stated in research on school improvement (Stoll et al., 2003), these numbers helped the school coach to point out schools' growth potential. In this way, the school coaches aimed at motivating school teams to change. Afterwards, the Validiv school coaches assisted the schools in outlining their action plan. These action plans were very much particularized according to the specific school culture and the challenges a school met, since this is an important condition to make the innovation trajectory work out (Harris, 2002). For the implementation of E-Validiv, a somehow uniform approach was used in the different schools. An important aspect in this process was the balance between support and pressure (Guskey, 1988). On the one hand, teachers received a manual to facilitate the use of the electronic learning environment and were provided with contact persons to whom they could pose technical or substantive questions. The answers to these questions were made available for all participating teachers through the "frequently asked questions"-overview in their teacher interface on the website. On the other hand, the external Validiv coaches were provided with information on the usage of E-Validiv in different schools. In this way, they were able to find out what was troubling teachers, to take away uncertainties and to encourage teachers that had been less active in the usage of the electronic learning environment. The external school coach thus provided teachers with a critical friendship, since the coach was a person who was on their side, trying to help them in their teaching practices, while at the same time being honest and critical about their teaching behavior (Hopkins, 2001).

The Validiv project is not the first in aiming at the inclusion of multilingualism in the school context (e.g. Maraillet, 2005; Saudan, 2005). Projects focusing on language awareness, on the one hand, generally show teachers reporting the effectiveness of the project (e.g. Fidler, 2006). Teachers confirm that the projects stimulate pupils' curiosity for languages and promote pupils' positive attitudes towards other cultures (Blondin & Mattar, 2004; Fidler, 2006; Hélot & Young, 2005). On the other hand, various projects focus on the usage of multilingualism in the learning process of multilingual pupils (e.g. Bourne, 2001; Ramaut, Sierens, & Bultynck, 2013; Van Avermaet & Sierens, forthcoming). These projects indicate their power to influence teachers' beliefs and classroom practices. The home language project reports that in control schools, 10 out of 35 teachers did not allow other languages to the classroom context, while in the schools that had participated in the project, every teacher allowed other languages (Ramaut, Sierens, & Bultynck, 2013). With respect to the methodology for studying teachers' behavior in

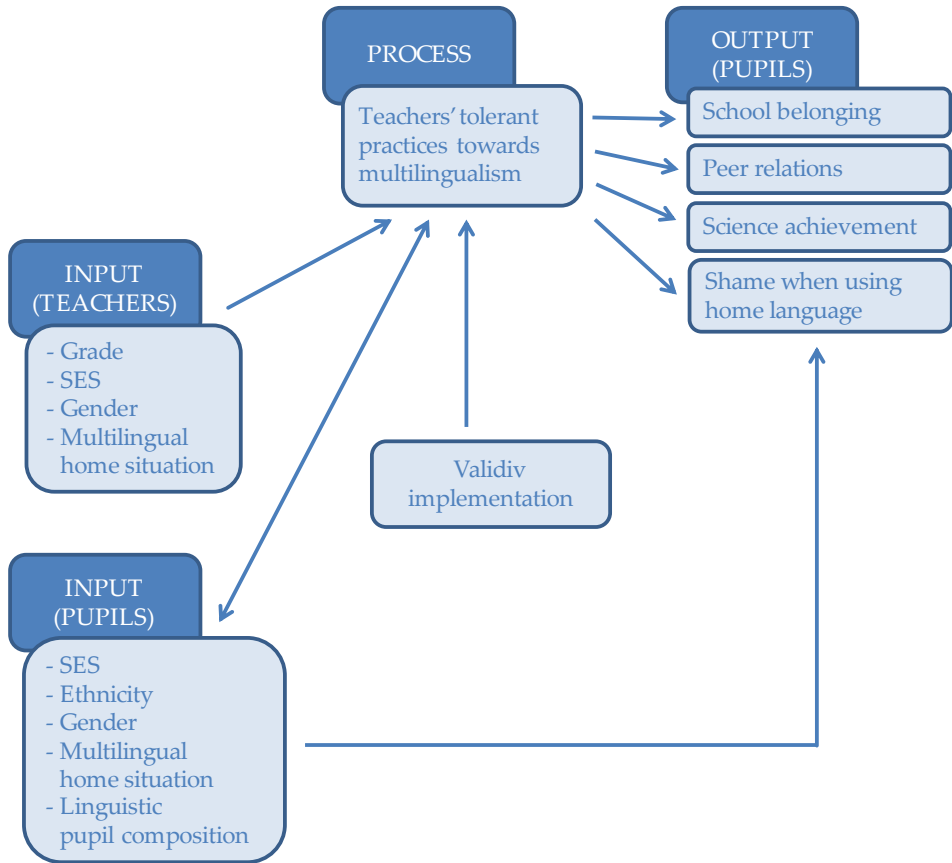
these projects, researchers have mainly focused on qualitative methodologies such as observations (Bourne, 2003; Maraillet, 2005; Ramaut, Sierens, & Bultynck, 2013), teachers' diaries (Fidler, 2006; Saudan, 2005) and interviews (Ramaut, Sierens, & Bultynck, 2013). Some projects do include quantitative results, but samples are mostly rather small, providing insufficient statistical power for an analysis of school level effects (e.g. Blondin & Mattar, 2004). Generally, no control schools or pretest is included (for an exception see Ramaut, Sierens, & Bultynck, 2013).

6. Methods

6.1. Translating the conceptual model into an operational model

In order to be able to conduct the research, the abstract conceptual model needs to be translated into a concrete operational model. This operational model parallels the conceptual model since it also reflects the CIPO-logic. In what follows, we will explain how the operational model was constructed and how it focuses on the caveats that are left by previous research.

Figure 2: Operational model



6.1.1. Context

The research for this dissertation has been conducted in Flanders, so this is the broader societal context. As quantitative methodology is based on the analysis of differences, including aspects into the model that do not vary does not make any sense. It is, however, important to describe the context in which the research is conducted, as has been done in the previous section.

6.1.2. Input

Teachers' input characteristics that are included in the operational model are grade, SES, gender and their multilingual home situation. Former research suggests that those might be related to teacher practices towards minority pupils (for attitudes towards Muslim pupils see Agirdag, Van Houtte, & Loobuyck, 2012; for attitudes towards ESL students see Youngs & Youngs, 2001). The input variables, however, are not central to the aim of this dissertation but are included as important control variables.

The same is true for pupils – their background characteristics are primarily used as control variables. Their SES, ethnicity, gender and multilingual home situation are included. The first three variables were included since they were found to relate to pupil outcomes in previous research (for gender see Anderman, 2003; for SES see Dixon & Rosenbaum, 2004; for ethnicity see Goodenow, 1993; Joyner & Kao, 2000). The multilingual home situation of pupils was included to be able to estimate its effect above and beyond the effect of linguistic school composition.

At the school level, the linguistic pupil composition is included in the operational model. Linguistic composition has not yet been focused on before, not even in school effects research. Because of this, as well as the fact that teachers' expectations of pupils change with varying pupil compositions (Agirdag et al., 2013), adding this variable into the model will contribute to the research.

6.1.3. Process

The process variable of teachers' beliefs about and practices towards multilingualism is operationalized as teachers' shared tolerant practices towards multilingualism. Teachers' tolerant practices towards multilingualism are practices described in earlier research as being supportive of multilingual pupils' non-cognitive outcomes (Auerbach, 1993; Jones, 2010) and responsive to the way multilingual pupils learn (Creese & Blackledge, 2011; Cummins, 2007).

By taking teachers' explicit practices into account and not focusing on their beliefs, we were able to evaluate the correctness of the measure by asking pupils whether they observed this specific behavior in their teachers. Another reason why we opted to focus on teaching practices in this dissertation is because those might have a direct effect on pupils' outcomes, while for beliefs, the effects rather goes through practices.

The specific school improvement program that is evaluated in this dissertation is the Validiv implementation, which was described in detail in the previous section.

6.1.4. Output

Both non-cognitive and cognitive outcomes are represented in the model. Three non-cognitive outcomes are chosen: sense of school belonging, feelings of shame around using the home language at school, and friendship relations with peers. These three represent the three relations of pupils that might be influenced by language ideologies at school: the pupil's relationship with the school (Cummins, 2001), the relationship with him/herself (Agirdag, 2010) and the relationships with peers (Aboud & Sankar, 2007). Pupils' learning process might also be affected by teachers' (language ideologies (Cheung & Slavin, 2012). Pupils' cognitive outcomes are measured in science achievement specifically, as multilingual pupils tend to score lower on science than pupils from a Dutch-only home (Bellens, Arkens, Van Damme, & Gielen, 2013). E-Validiv, the multilingual electronic learning environment, also targeted the acquisition of science topics.

6.2. Data

6.2.1. Desired sample of schools

We use data gathered as part of the Validiv project. Quantitative data were collected during the academic year 2012–2013 from 1,761 fourth grade pupils, 1,562 parents, and 1,255 teachers in a sample of 67 primary schools in the Flemish Community.

Multistage sampling was conducted. Since the focus of our research was on linguistic diversity, we selected three regions that historically received a lot of migrants and therefore had relatively linguistically diverse populations (i.e. Brussels, Ghent and Limburg). Second, using data gathered from the Flemish Educational Department, we chose 212 primary schools within these selected regions and initially asked 60 of them to participate. Half of the schools were randomly assigned to the experimental condition, while the other half were invited to participate as control schools.

The data from the Flemish Educational Department also included information on the number of pupils that did not speak (only) Dutch at home. A pupil with a home

language other than Dutch is defined by the Educational Department thus: “The language that the pupil speaks in his family is not the language of instruction, if the pupil speaks the language of instruction with none or, in a family with three family members (the pupil not included), with maximum one of the family members. Siblings are counted as one family member.” (Art. 133 of the law on primary education, own translation)

Based on these data, we were able to distinguish three categories of schools: (1) schools in which less than 10% of pupils (also) spoke a language other than Dutch at home, (2) schools in which between 10% and 50% of pupils (also) spoke a language other than Dutch at home, and (3) schools in which more than 50% of pupils (also) spoke a language other than Dutch at home.

In order to be able to compare schools with different linguistic compositions, the sample aimed at including an equal amount from every category of linguistic diversity.

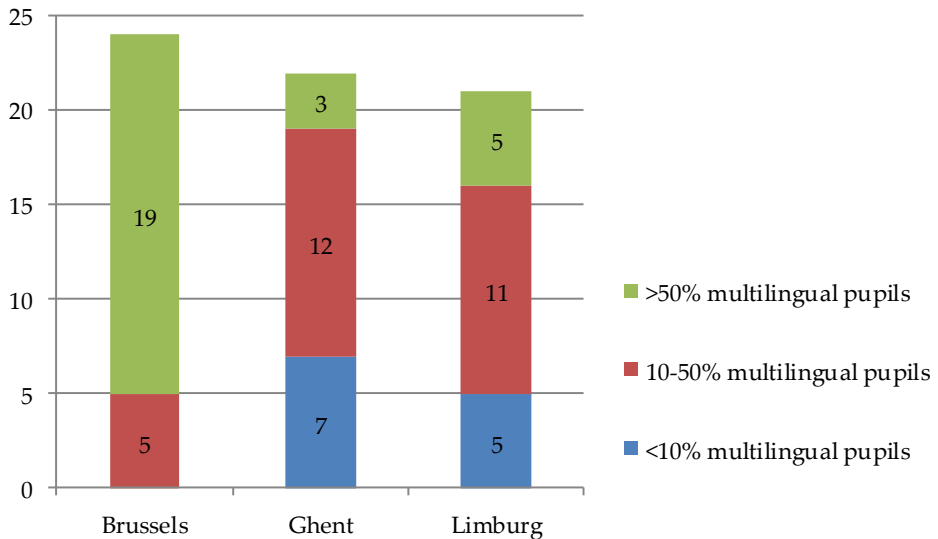
6.2.2. Recruitment of schools

In order to convince schools to participate, school principals first received a letter explaining the content of the project and inviting them to participate. For the schools in the control condition, the letter provided them with information about the data gathering. For the schools in the experimental condition, the letter also elaborated upon the implementation trajectory of the Validiv tools. Some of the schools replied positively to this letter, others were convinced at a later stage via a phone call. A small number of the principals invited the Validiv team members to the school in order for them to convince their school teams of the usefulness of participating. The Validiv team members always responded to such invitations, in order to convince as many schools as possible. With schools that agreed to participate in the project, the Validiv team members scheduled a moment for a first data collection round. Schools that decided not to participate were substituted with a school from the same region (Brussels, Ghent, Limburg), condition (experimental or control school) and linguistic composition in order to prevent bias in the realized sample. The same process of recruitment was used for these schools.

6.2.3. Realized sample of schools

In total, 212 schools were contacted, of which 31%, or 67 schools, agreed to participate. Of these schools, 24 were located in Brussels, 22 in Ghent and 21 in Limburg. Concerning the sector of the schools, 37 were private schools, 17 communal (run by the community of Flanders) and 13 municipal (run by the municipality). As regards the condition a school agreed to participate in, 32 initiated the experimental trajectory and 35 functioned as control schools. Although we aimed at including an equal amount of every category of linguistic diversity, this proved to be impossible, since Brussels did not have any Dutch-dominant schools, and multilingual-dominant schools were scarce in the region of Ghent. Instead, we strived for as much diversity in linguistic composition as possible, resulting in 12 schools with less than 10% of pupils using (also) a language other than Dutch at home, 28 schools with between 10 and 50% of pupils using (also) a language other than Dutch at home and 27 schools with over 50% of pupils using (also) a language other than Dutch at home, as can be seen in Figure 3.

Figure 3: Distribution of linguistic diversity in the realized sample of schools



We compared the realized sample with the desired sample of schools. Although a response rate of 31% is rather low, the realized sample was not biased in terms of the region (Brussels, Ghent, Limburg), school sector (private, municipal, communal), linguistic composition (% of pupils that (also) spoke a language other than Dutch at

home) and condition (experimental or control school) in comparison to the desired sample. The chances to accept to participate were comparable (around 31%) for schools in different categories: for different regions (acceptance rates of 30,2% in Brussels, 31% in Ghent and 29,2% in Limburg), for sectors (acceptance rates of 30,4% in private schools, 25% in municipal schools and 35,7% in communal schools), for schools with a different linguistic composition (acceptance rates of 32,4% for school with less than 10% multilingual pupils, 28,6% for schools with between 10 and 50% of multilingual pupils and 31% for schools with more than 50% multilingual pupils) and for schools differing in condition (acceptance rates of 30,3% for experimental schools and 30,1% for control schools).

6.2.4. First data gathering moment (T1)

In all 67 schools that agreed to participate, our research team surveyed all fourth-grade pupils (median age = 9). Parents of these pupils and all teachers from their schools were asked to fill out a paper-and-pencil questionnaire. Of the pupils, 95.8% (1761) were present during our visit and completed the questionnaire; 85% of the parents (1562) and 75.4% of teachers (1255) also did.

Following a detailed training on how to survey the pupils, teachers and parents, the Validiv team members visited the schools to begin the data gathering. In this way, we made sure the data gathering was completed as uniformly as possible. All pupils filled out a questionnaire about their background and the way they perceived school life, upon which they completed two tests: one on reading comprehension and the other on science. They were assisted by the researchers who had detailed instruction on what could and what could not be explained. For instance, difficult words could be explained during the background questionnaire, but could not be clarified or translated during the test on reading comprehension. Every participating pupil took a questionnaire home for his/her parents, which was available in Dutch, Turkish and French and could be returned in a sealed envelope through the school. Every teacher at the participating schools also received a questionnaire which could be returned to the researchers in a sealed envelope through a gathering point at school.

6.2.5. Second data gathering moment (T2)

During the course of the research project, several schools renounced or changed their commitment: Four schools completely terminated their commitment, while two others transferred from the experimental condition to the control condition before the implementation began. This resulted in a situation in which at the end of the project, of the 67 schools, 60 schools provided us with satisfactory data on the second data gathering moment. Of those schools, 29 had participated in the experimental condition, 30 were control schools, 2 had transferred from the experimental condition to the control condition (One of those schools was included in the analyses as a control school, since the transfer occurred before the intervention was started. The other school transferred on a later moment and was excluded from the longitudinal analyses), 4 had completely quit and 2 participated in the placebo condition (In these placebo schools, E-Validiv, the electronic learning environment was available in Dutch only. The post-test data of these schools were not included, since only 33 pupils were part of those schools; this seemed too few to use them as a category to compare to other schools.).

In table 1, the full sample of schools was compared to the schools that provided useful data at both data gathering moments. From this comparison, we learn that the attrition at school level was not biased regarding the linguistic composition of a school, SES composition, school size or school sector.

Table 1: Comparison of school sample characteristics

	T1		T1+T2	
	Mean (SD), %	N	Mean (SD), %	N
Linguistic diversity in pupil composition (range 0-0.78)	0.42 (0.22)	67	0.43 (0.21)	60
% pupils not from Dutch-only home (range 0.21-1)	0.75 (0.18)	67	0.75 (0.19)	60
Mean SES school (range 28-76)	49 (13)	67	48 (12)	60
School size (range 36-968)	314 (167)	67	326 (171)	60
School sector				
Communal school	25%	67	28%	60
Municipal school	20%	67	19%	60
Private school	55%	67	53%	60

In order to assess the effects of the Validiv implementation, data on the same teachers and pupils in pre- and post-test were needed. The questionnaire was filled out by 1255 teachers at the first data-gathering moment. At the second one, spring 2014, 1000 teachers from 60 schools filled out the survey. Of these teachers, 763 had filled out the first questionnaire too, meaning there was 39% attrition. Teachers dropped out due to maternity leave and sickness, because they switched schools or just started working or because they retired between the first and second data gathering moment. In table 2 we compared teachers that only filled out the questionnaire at time point 1 and teachers that filled it out at both data gathering moments. From these analyses, we notice that there are no important differences between both groups, except for a difference due to gender. It remains unclear why female teachers were more likely to participate at both points in time.

Table 2: Comparison of teacher sample characteristics

	T1		T1+T2	
	Mean (SD), %	N	Mean (SD), %	N
Tolerant teaching practices towards multilingualism (range 1-5)	2.21 (1.01)	1115	2.19 (1.02)	667
SES (range 11-89)	51 (20)	1220	52 (20)	713
Grade				
Kindergarten teacher	27.9%	1177	28%	703
Primary school teacher	45%	1177	49%	703
Support teacher	15.6%	1177	15%	703
Other teacher	11.5%	117	8%	703
Gender				
Male	35%	1239	14%	728
Female	65%	1239	86%	728
Multilingual home situation				
No	83%	1241	85%	734
Yes	17%	1241	15%	734
Experience (range 0-49)	15 (10)	1253	15 (10)	744

Of the fourth grade pupils, 1761 filled out the questionnaire at the first point in time. At the second point in time, 1648 fifth grade pupils participated, of which 1481 had also completed the questionnaire at time point 1, when they were in fourth grade. This means that there was an attrition of 16% in pupils. In table 3, we compared pupils that filled out the first questionnaire with pupils that filled out a questionnaire at both data-gathering moments. Differences were noticed in SES, multilingual home situation, ethnicity and

grade retention, with pupils present for both data gathering moments being of higher SES, less often having repeated grades, more often from Dutch-only homes, and of Belgian descent. In short, we could say that the sample of pupils that participated in both questionnaires, was slightly more privileged than the original dataset. This parallels the findings of Vantieghem (2015).

Table 3: Comparison of pupil sample characteristics

	T1		T1+T2	
	Mean (SD), %	N	Mean (SD), %	N
SES (range 11-89)	50 (22.5)	1731	51 (22)	1460
Gender				
Male	50%	1761	50%	1481
Female	50%	1761	50%	1481
Multilingual home situation				
No	11%	1598	32%	1329
Yes	89%	1598	68%	1329
Ethnicity				
Morrocan	12%	1723	13%	1452
Turkish	13%	1723	13%	1452
Dutch	2%	1723	2%	1452
Belgian	48%	1723	53%	1452
Other	25%	1723	19%	1452
Grade retention				
No	75%	1738	77%	1462
Yes	25%	1738	23%	1462

During the second data gathering moment, pupils again filled out a questionnaire about the way they perceived school life, and then completed three tests: one on reading comprehension, one on science and another one assessing their general cognitive ability. Teachers filled out another questionnaire about their perception of school life, and teachers in the experimental schools completed an additional questionnaire focusing on the implementation of the Validiv project. Parents were not surveyed during the second data gathering moment, since we did not expect any changes in parents due to the Validiv implementation. At the second data gathering moment, a short questionnaire was filled out by the school coaches. They assessed all schools in the experimental condition on their innovation trajectory.

6.3. Complementing statistics by qualitative data

Complementing quantitative data with qualitative data can generate deeper insight into reality than either of the methods can by itself. The qualitative data used for this dissertation are twofold.

On the one hand, we gathered qualitative data on 24 twelve-year-old pupils during two focus group sessions about language policy at school in December 2012. All pupils came from the same medium-sized school in Ghent with an ethnically very mixed pupil population. The school was selected based on its prior experience in a project concerned with the usage of multilingualism in the classroom: the Home-Languages-In-Education project, conducted by the universities of Ghent and Leuven and the city council of Ghent. We chose it because we wanted to look at the hierarchical differences between languages expressed by pupils in a school where those differences were rather egalitarian. Since this school participated in a workshop organized by my own university, the pupils were easily accessible and felt eager to participate. All 6th graders visited the university and participated in the focus groups.

The participating pupils were divided into two groups and took part in a workshop in which they discussed a language policy for their school. The interviewees were not divided randomly over the two groups, as the grouping matched their classroom grouping. The research design of the focus group was the same for both groups. Discussions followed after reading a hypothetical event that happened in the school context: Pupils reacted to these hypothetical events and were challenged to find solutions in the form of clear rules that could be applied within a school context.

On the other hand, this dissertation also includes a study using qualitative data on teachers (data gathered by Lies Strobbe, University of Leuven). The qualitative data originated from ten primary schools that formed part of the broader quantitative sample. These ten schools were situated in former mining communities in Limburg. These communities are multicultural and multilingual due to influxes of migrant employees in the mining industry. Consequently, schools in these communities have to address a linguistically diverse pupil population.

The qualitative data consisted of audio-recorded focus group discussions with the schools' core team. These teams consist of three to six members, often including the headmaster, 'special needs' teachers and language coaches. Sometimes regular teachers form part of the core team too. These teams already existed in the participating schools –

they were not drawn up as focus groups exclusively for research purposes. In all ten schools the core team had a wide array of responsibilities, including drawing up and implementing the school's language policy.

During these discussions, focus group members were asked about their ways of dealing with multilingualism, using guiding questions such as 'What comes to mind when you hear the word 'multilingualism'?', 'What past experiences do you have with multilingualism?', 'What do you consider to be the place of multilingualism at your school?' All audio-recordings were transcribed verbatim.

6.4. Variables

In this section, detailed insight will be provided into the most important variables in the quantitative empirical analyses. The specific average, range and standard deviation were derived from the analysis of the pre-test data unless indicated otherwise and an overview is provided in table 4 on page 58. We will first focus on the principal variable of this dissertation: tolerant practices towards multilingualism which was measured in teachers. This variable was used in every empirical study. Afterwards, we draw our attention to pupil level variables and finally, the variables at the level of the school will be presented.

6.4.1. Tolerant practices towards multilingualism

Tolerant practices toward multilingualism are measured in teachers using a four-item scale that was designed by the Validiv team. The four items of the scale were introduced by stating "Every teacher has their own way of teaching. These statements deal with what you would tolerate or not if you were to teach pupils with a different home language."

1. Pupils are allowed to use a language other than Dutch to explain the content to another pupil.
2. Pupils are allowed to use a language other than Dutch during groupwork.
3. Pupils are allowed to use a language other than Dutch in the classroom.
4. Pupils are allowed to use a language other than Dutch on the playground.

Answer categories were never (1), almost never (2), sometimes (3), often (4) and very often (5).

Item correlation substitution was used for missing values (Huisman, 2000). We replaced missing values in an item by the value of another item that correlated most highly with it. These reduced missing values form on average about 20% in the original items to about 11% in the items that were used for scale construction.

Since the items of the scale are thought to be influenced by an underlying language ideology, we conducted a confirmatory factor analysis (CFA) with reflective items. The CFA showed all items measure the same underlying concept as the indicators of model fit were very favorable ($\chi^2=3.219$ ($p=0.2$), RMSEA=0.023 ($p=0.794$), CFI=0.999, TLI=0.998, SRMR=0.007), and the scale's Cronbach's alpha was 0.86.

We compared the tolerant practices reported by the teachers with the perceived tolerant practices by the pupils – measured by the same items, only reformulated from the point of view of the pupils – and found that both correlated strongly ($r=0.65$, $p<0.01$). This might be an indication that no important social desirability bias for this measure exists.

On average, teachers scored 2.22 on a scale from 1 to 5 with a standard deviation of 1. Tolerant practices toward multilingualism were thus rather rare. The distribution of the variable of tolerant practices towards multilingualism had a very skewed distribution. A lot of teachers scored low on the measure, while very few had a very high score.

6.4.2. Variables on the level of the pupil

Sense of school belonging - The original scale of sense of school belonging contains ten items inspired by Eccles and colleagues (1997), which we translated into Dutch. Using a confirmatory factor analysis, we selected items that loaded higher than 0.3 on one component. The eight selected items are listed below.

1. I think most of my classes are boring.
2. I look forward to going to school every day.
3. I feel as if I really belong in school.
4. In general, I like school a lot.
5. Homework is a waste of time.

6. Grades are very important to me.
7. I get along well with my teachers.
8. My teachers think I am a good student.

The Cronbach's alpha for this scale was 0.76. The scores on each item ranged from 1 (completely agree) to 5 (completely disagree), and were then averaged, yielding a mean of 3.77 (SD = 0.7).

Peer relations - Pupils' same-language peer friendships were measured using two questions. The pupils from a Dutch-only home were asked how many of their best friends spoke only Dutch at home, while multilingual pupils were asked how many of their best friends spoke the same language as they did at home. Possible answer categories ranged from 1 (none of my best friends) to 5 (all of my best friends). High values on this measure thus mean many same-language peer friendships and lower values indicate few same-language peer friendships. We found a mean of 3.23 (SD=1.44) on same-language peer friendships for the whole sample.

Science achievement - With regard to science achievement, the pupils filled in a test at time point 2, consisting of 46 items with a multiple-choice format. The items were based on the released 2011 science items in Dutch from The International Mathematics and Science Study (TIMSS) (Bellens & De Fraine, 2012). The answers were binary coded: pupils received one point for a correct answer and zero points for an incorrect answer, with a maximum score of 46 points. Pupils scored on average 24.9 (SD=6.2).

Feelings of shame when using home language - Pupils' feelings of shame in using their home language was only measured in multilingual pupils and was measured at time point 2 by the item "I feel ashamed when I use the language I use at home on the playground". The answers ranged from 1 (=never) to 5 (=very often) on a 5-point Likert scale. Since this variable had a very skewed distribution, it was transformed into a dichotomous variable, with scores 1 and 2 grouped into a category of pupils who were not or not much affected by feelings of shame with regard to their home language and scores 3 to 5 grouped into a category of pupils who do experience shame in using their home language. Using this categorization, 22 % of the pupils experienced shame when using their home language, while 78% of the pupils were not or not much affected by feelings of shame.

Self-assessed multilingual proficiency - Pupils' self-assessed multilingual proficiency is a categorical variable that indicates how pupils assess themselves in different languages. It resulted in the inclusion of three dummies in the model: (1) Dutch dominant bilinguals are pupils who assess their Dutch as good or very good, while scoring themselves lower at their other language; (2) other language dominant bilinguals assess their other language as good or very good while they assess their Dutch as not that strong; (3) balanced bilinguals are pupils who assess their skills in both languages as good or very good. These dummies are compared to the reference category: pupils who only speak Dutch at their homes. In our sample we found 191 children (14%) from Dutch-only homes, 181 (13%) Dutch dominant bilinguals, 39 (3%) other language bilinguals and 947 (70%) balanced bilinguals.

Pupils' usage of E-Validiv - The total amount of time pupils spent in E-Validiv (in minutes) over the course of the intervention is an indicator of time-on-task, which can be regarded as an important predictor of learning (Snow, 1990). In our sample, pupils spent on average 200 minutes on E-Validiv, with a standard variation of 110 minutes. This was measured through the logging system behind the electronical learning environment, which saved all the relevant activities the pupils performed in E-Validiv.

In a similar way, the time spent in the other language was determined through the logging. For reasons of interpretation, this variable is set to a proportion. On average, pupils spent 25% of the time on E-Validiv in the other language. This measure had a standard deviation of 23%.

The relationship between pupils' home language and the other language available to them in E-Validiv was determined through the combination of three questions in the pupil questionnaire at time point 2. First, pupils were asked which language they speak with both of their parents on a 5-point Likert scale (1 = always Dutch; 5 = always another language). If pupils indicated that they sometimes speak another language with at least one of their parents, they were regarded as multilingual pupils. This was linked to the question "Which language do you speak at home with your parents?", with eleven options, among which the six other languages available in E-Validiv were represented. If pupils marked the same language as the one that was available to them in E-Validiv, they were considered as having a match between their home language and their other language in E-Validiv. Pupils indicating another language were regarded as not having a match. In our sample, 86.4% of the multilingual pupils had a match between their home language and their other language in E-Validiv, while 13.6% did not.

Table 4: Descriptive statistics of most important variables

Variable	Range	Mean (SD), %	Sample
Teachers			
Tolerant practices towards multilingualism	1-5	2.22 (1)	1255 teachers, pre-test
Pupils			
Sense of school belonging	1.25-5	3.77 (0.7)	1768 pupils, pre-test
Same-language friendships	1-5	3.24 (1.44)	1487 pupils, pre-test
Science achievement	8-42	24.9 (6.2)	865 multilingual pupils, post-test
Shame when using home language (Yes)		22%	818 multilingual pupils, post-test
Shame when using home language (No)		78%	818 multilingual pupils, post-test
Self-assessed (S-a) multilingual proficiency (Dutch-only home)		14.1%	1358 pupils, pre-test
S-a multilingual proficiency (Dutch dominant bilingual)		13.3%	1358 pupils, pre-test
S-a multilingual proficiency (Other language dominant bilingual)		2.9%	1358 pupils, pre-test
S-a multilingual proficiency (Balanced bilingual)		69.7%	1358 pupils, pre-test
Time spent in E-Validiv	1-648	200 (110)	453 multilingual pupils, logging data
Proportion time spent in other language in E-Validiv	0-0.97	0.25 (0.23)	453 multilingual pupils, logging data
Match home language in E-Validiv (Yes)		86.4%	419 multilingual pupils, post-test
Match home language in E-Validiv (No)		13.7%	419 multilingual pupils, post-test
Schools			
Tolerant practices towards multilingualism	1.30-4.38	2.23 (0.63)	66 schools, pre-test
Linguistic diversity	0-0.78	0.42 (0.22)	67 schools, pre-test
Experimental condition (Experiment)		47.8%	67 schools, pre-test
Experimental condition (Control)		52.2%	67 schools, pre-test
Usage of Validiv tools	0.01-0.68	0.27 (0.17)	27 experimental schools, post-test
Basic conditions for innovation	1-5	3.15 (1.38)	27 experimental schools, post-test
Investment of school coach	1-5	3.39 (1.29)	27 experimental schools, post-test

6.4.3. Variables on the level of the school

Tolerant practices towards multilingualism - In order to be able to use this scale as a process variable when focusing on pupil outcomes in multilevel regression, we aggregated the measure to the school level. We therefore use the concept of school culture, as it was theorized by Van Houtte (2005). Culture can be defined as “the set of shared meanings, shared beliefs, and shared assumptions of the members of the organization” (Rousseau, 1990; Smircich, 1985; Van Houtte, 2005, p. 77). To obtain a measure of the shared tolerant practices towards multilingualism of a school, we used the intraclass correlation coefficient (ICC, based on a one-way ANOVA and calculated as (Between Mean Square – Within Mean Square)/Between Mean Square). The ICC was 0.91, indicating that teachers within schools resemble each other more than teachers from different schools (Glick, 1985; Shrout & Fleiss, 1979) and which legitimized aggregation to the school level. We aggregated the measure by taking the mean, and used that mean as a school level variable. The mean of this aggregated measure of tolerant culture towards multilingualism is 2.23 (SD=0.63).

Linguistic diversity - is taken into account at the school level. It is measured by using the Herfindahl index (Dronkers, 2010; Putnam, 2007) applied to linguistic composition by taking both group size of every linguistic group present and the diversity in linguistic groups into account. The index is calculated using this formula: $-1 \times [(proportion\ linguistic\ group\ 1)^2 + (proportion\ linguistic\ group\ 2)^2 + \dots + (proportion\ linguistic\ group\ n)^2] + 1$. Values for this index range from 0 to 1, with a value of 0 indicating that only one home language is present at school; this could be Dutch or any other language. A value of 1 indicates that every pupil in the school uses a different language at home. The scores for linguistic diversity in our sample vary from 0 to 0.78 with an average linguistic diversity of 0.42 and a standard deviation of 0.22.

Condition and intensity of Validiv project - The intervention condition of the school was indicated by a dummy variable. This variable had values of 0 indicating the school was in the control condition, and values of 1 indicating the school was part of the intervention condition. Thirty two schools (47.8%) started off as intervention schools and 35 as control schools (52.2%).

For schools in the project condition, three variables were used in the empirical studies that focused specifically on the way the project was implemented.

Firstly, we included a measure indicating how often the teachers used the Validiv tools in their classroom. For this measure, the information from teachers was used. They indicated the usage of the three Validiv tools using a scale from 1 (not used) to 4 (regularly used). These measures were averaged with low values indicating a low use of the Validiv tools, and high values indicating the opposite. To include this measure in a multilevel regression model with pupil outcomes, we aggregated this measure to the school level. We calculated the mean usage of the Validiv tools in every school and formed a scale from 0 (no usage) to 1 (regular usage). On average, schools scored 0.27 on this measure with a standard deviation of 0.17.

The second of these conditionally relevant variables is a measure that focuses on the extent to which an external school coach believes a school has met the basic conditions in order to accomplish a fruitful innovative process. The external school coaches were provided with five hypothetical situations and appointed the most comparable situation to every school they had coached. The measure of meeting the basic conditions for innovation goes from 1 (indicating that the school did not meet the basic conditions) to 5 (indicating that the school convincingly met the basic conditions) with an average of 3.15 and a standard deviation of 1.38. A third conditionally relevant variable that was included in the analysis was a variable indicating how much energy and time an external school guide invested in the coaching process in every school. This measure was measured in the school coaches and made use of hypothetical situations as well, like the previous one. The measure of investment of the external school coach also goes from 1 (no investment) to 5 (a large investment) with an average of 3.39 and a standard deviation of 1.29.

6.5. Research design

This dissertation focusses on how characteristics of the school influence outcomes in both pupils and teachers. Moreover, the teachers and pupils that were part of our sample were clustered in schools. Therefore, it is appropriate to model the clustered nature of the data (Raudenbush & Bryk, 2002; Snijders & Bosker, 1999). By using multilevel regression techniques, we avoid biased results and are able to distinguish between variance on the school level versus on the pupil level for the different outcome measures.

In every study, we start by estimating the empty multilevel model, which shows us how the variance in a certain outcome variable is distributed over the higher (school) and the

lower (teacher or pupil) level. Then, we continue stepwise by adding the school level variables. In this way, we avoid an overcontrol bias (Goldsmith, 2011). The overcontrol bias might obscure effects on the school level when effects on the lower level are added to the model before the higher level effects. This might be due to the higher level effects actually influencing the composition on the lower level.

The focal variable of teachers' tolerant practices towards multilingualism links teachers and pupils together. Although pupils and teachers were part of different datasets, these could be connected by aggregating data from the lower level to the school level (Glick, 1985; Shrout & Fleiss, 1979; Van Houtte, 2011). As teachers were found to share tolerant practices towards multilingualism on the school level, we were able to aggregate the measure to the school level (see also the section on tolerant practices towards multilingualism on page 59. In this way, we could introduce the measure on the school level when performing analyses on the dataset of pupils (see studies 1, 2 and 5). This happened the other way around too, as we included a measure on the linguistic composition of the pupil population to the analyses on teacher outcomes (see studies 3 and 4).

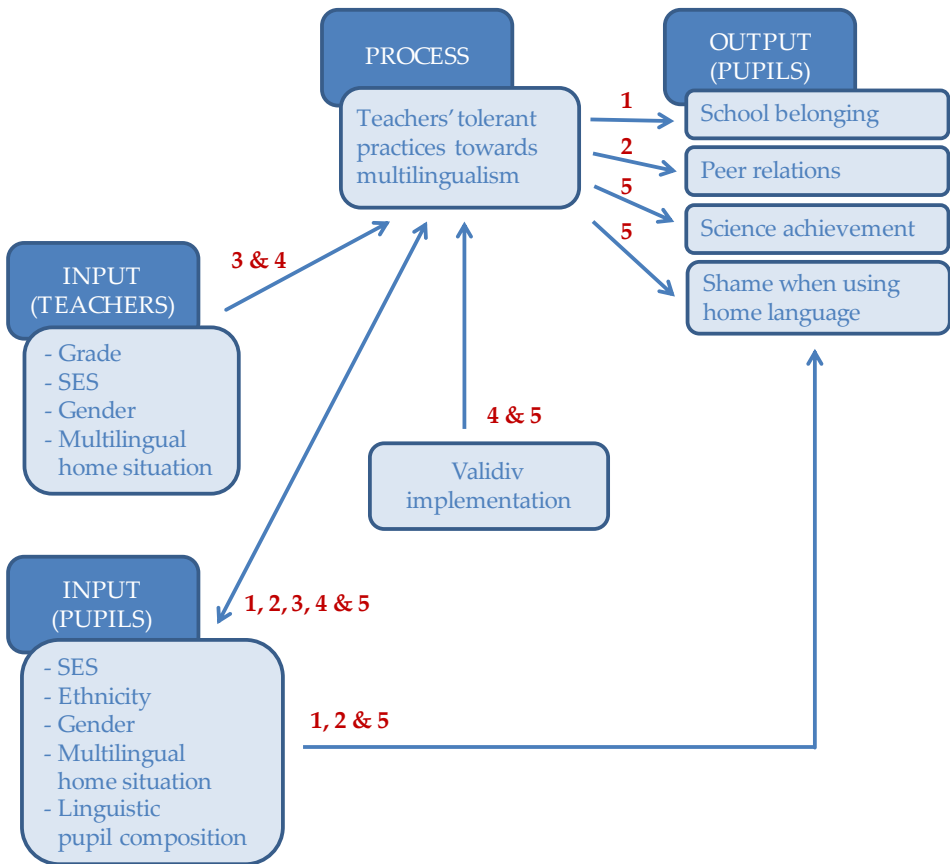
The distribution of the variable of tolerant practices towards multilingualism had a very skewed distribution. A lot of teachers scored low on the measure, while very few had a very high score. Therefore, it was better to use the Poisson distribution when this measure was the dependent variable. However, the results of study 3 and 4 are presented as linear regression models, since the Poisson distributions did not lead us to conclude any differently on the research questions.

Although this dissertation is mainly quantitative in nature, it also includes, to a rather limited extent, qualitative data: study 2 uses focus group data on pupils and study 3 uses interviews with teacher teams. In this way, the understanding of the quantitative results is deepened and our understanding of what is going on in schools is amplified.

The conceptual model is inspired by the CIPO-model and as a result, is strongly related to the quantitative methodology that is often used in school effectiveness research (Scheerens, 1992). Sociolinguistic research, in turn, has been a theoretical inspiration, as it has profoundly focused on multilingual classrooms and how teachers and pupils handle different home languages in the context of a school (e.g. Cummins, 2001; García & Flores, 2012; Jorgensen, 2005).

In Figure 4, the different studies are located in the conceptual model and can be easily linked by their numbers to the different chapters that will be presented in the next section, *empirical studies*.

Figure 4: Operational model



Part 2

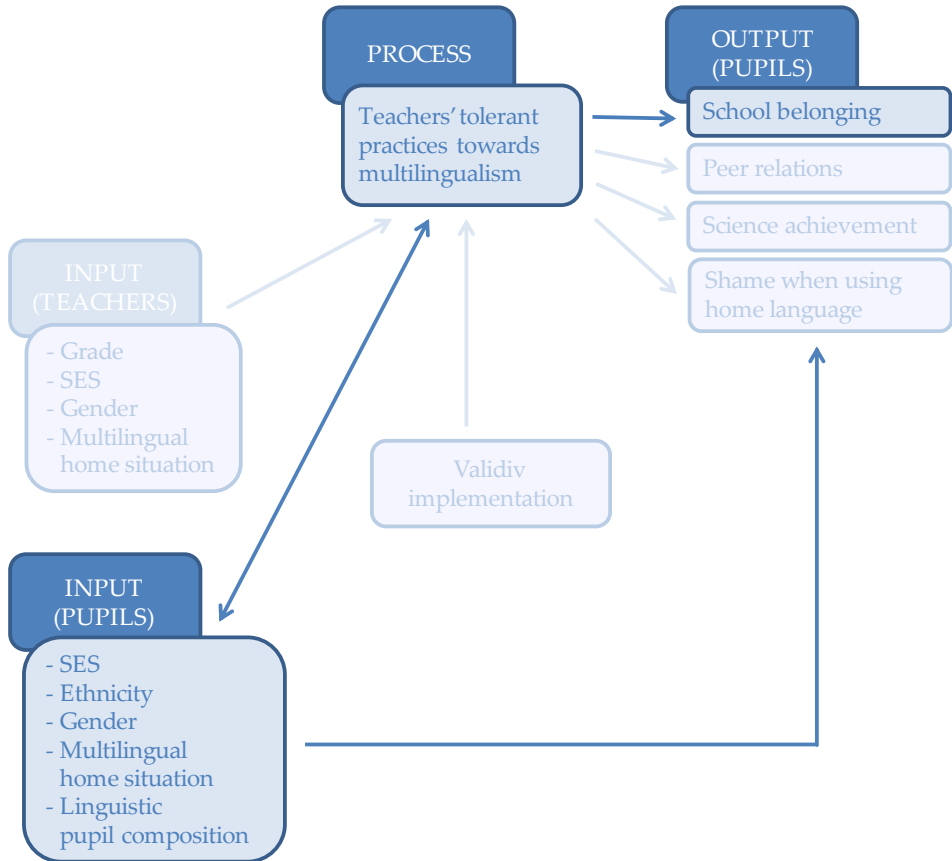
Empirical studies

1. **Multilingual school population: Ensuring school belonging by tolerating multilingualism**

This chapter is published in International Journal of Bilingual Education and Bilingualism (2016).

ABSTRACT - Societies have become super-diverse due to migration and globalization. Many mainstream classroom teachers feel managing the linguistic variety children bring to school is challenging. This often leads to restrictive language policies. Research on multilingualism has given us insight into the multilingual realities of pupils, which allows us to focus on how the integration of these realities in school life might affect pupils' academic results and well-being. This study examines how teachers' tolerant practices toward multilingualism might mediate the relationship between schools' linguistic diversity and pupils' school belonging. The survey data come from 67 Flemish primary schools, in which 1255 teachers and 1761 pupils participated. Stepwise multilevel modeling showed that teachers' tolerating practices towards multilingualism statistically compensate for the negative effects of linguistically diverse schools on school belonging.

Figure 5: Aspects and relations in the operational model under focus in study 1



1.1. Introduction

The influx of migrants and the increased diversity it has caused, put pressure on the ideology of a nation-state as being linguistically and culturally homogeneous (Blommaert & Verschueren, 1991): Since nation-states are framed as being homogeneous wholes, diversity is seen as a threat. Amongst other things, ideologies about language are used in order to reach the ideal of a homogeneous nation-state. Ideologies of monolingualism, or at least multilingualism in terms of parallel monolingualisms (Blommaert, 2005), are imposed not only on the level of nation-state policies but only through the institutions on the meso level, such as schools (Blommaert & Van Avermaet, 2008).

Influenced by these language ideologies, many teachers believe that linguistic diversity has negative effects on the school as a context for learning (Dooly, 2005; García, 2009; Pulinx, Van Avermaet & Agirdag, 2016) and do not know how to handle the linguistic diversity pupils bring to school (Agirdag, 2009; Coleman, 2010). This often leads to teaching practices that discourage multilingualism and ignore the multilingual background of many pupils (e.g., Gogolin, 2002).

Sociolinguistic research, however, has shown how multilingual children use their linguistic repertoires in a natural and integrated way (e.g., Jorgensen, 2005). Although pupils are studying in a monolingual context, this does not necessarily mean that they think, and thus learn, in a monolingual way (Busch, 2010). However, due to the ideologies of monolingualism, common practices of integrated use of different language are often seen as a deficit (Heller, 1999). Insights about pupils' integrated usage of multilingualism and its possible benefits for learning, have brought scholars like Ofélia García (2009) and Jim Cummins (2001) to theorize about the integration of pupils' multilingual realities in education.

From previous research, we know that teachers' language practices are influenced, amongst many other factors, by language ideologies emphasizing the importance of separating different languages for instruction and excluding some linguistic resources from the learning context (e.g., Blommaert, Creve, & Willaert, 2006; Heller, 1999). However, less has been said about the variation of such practices and their consequences for pupils across different school contexts. Therefore, it is interesting to focus on the impact of different aspects of the school context using large scale quantitative methods – aspects such as the composition of pupil population and shared practices towards multilingualism among teachers in schools – in order to determine how these aspects affect pupils' sense of school belonging. We examine the effects of linguistic composition on sense of school belonging (SSB) and focus on how this relationship may be mediated by teachers' perspectives on multilingualism. Do pupils feel more connected to school life if their languages are welcomed?

1.2. Theoretical framework

In this section, we will first focus on the concept of pupils' sense of school belonging. Then we will elaborate on how the central concepts in this paper, school belonging, linguistic diversity and tolerant teaching practices towards multilingualism, interlock.

1.2.1. What is school belonging?

School belonging can be described as ‘feelings of connectedness to school or community, or feelings of inclusion and support in the school social environment’ (Jimerson, Campos, & Greif, 2003). School belonging has a far-reaching impact on pupils. Pupils with a low sense of school belonging (SSB) drop out of school more often (Finn, 1989), might have behavioral problems (Johnson, Crosnoe, & Elder, 2001), and are at higher risk for delinquency (Finn, 1989) and drug use (Fletcher, Bonell, Sorhaindo, & Strange, 2009). Pupils with a higher SSB, in contrast, have more positive attitudes toward school, classwork, teachers and peers, are more engaged in school life and invest more in learning (Osterman, 2000). A stronger SSB, moreover, leads to high academic achievement (Goodenow, 1993).

Although studies have mainly concentrated on the consequences of sense of belonging (Anderman & Freeman, 2004), some important predictors of SSB have been indicated. Firstly, research has indicated a gender difference in SSB. Boys generally score lower than girls (e.g., Ma, 2003; Anderman, 2003; Van Houtte & Stevens, 2009), though a few exceptions to this general tendency exist (McNeely, Nonnemaker & Blum, 2002). Next, pupils from a higher socio-economic background are shown to have stronger SSB (e.g., Ma, 2003; Van Houtte & Stevens, 2009; Demanet & Van Houtte, 2012). In addition, grade point average is positively related to SSB (Demanet & Van Houtte, 2012, McNeely et al., 2002), although this variable could be seen both as a predictor or a consequence of SSB. Finally, research has shown different levels of SSB in pupils from different ethnicities. Some studies show higher levels of SSB in white pupils (McNeely et al., 2002), while others found whites scoring lower than African Americans (Voelkl, 1997). It is suggested that the sense of belonging of ethnic minority pupils could be a result of their minority status in the school context rather than of their ethnicity itself (Anderman & Freeman, 2004).

Research on the determinants of SSB has predominantly focused on pupil characteristics, while school features are rarely considered (Fredricks, 2004). School level variables that have been investigated with respect to their effect on SSB are school size, urbanity, and sector (public or private school). These general school characteristics have shown rather small effects on the SSB. School size has been found to have a negative (e.g., McNeely et al., 2002) or no effect (e.g., Demanet & Van Houtte, 2012) on SSB, while urbanity (e.g., McNeely et al., 2002) and school sector (e.g., Demanet & Van Houtte, 2012) show a similar lack of influence. The effect of different aspects of school climate has been looked

into (e.g., Ma, 2003; Smerdon, 2002), as have the effects of teacher roles and relations on SSB (e.g., McNeely et al., 2002; Smerdon, 2002; Demanet & Van Houtte, 2012) – both showing mixed results. As a last important school level predictor of SSB, pupil body composition has been researched (e.g., Johnson et al., 2001; Van Houtte & Stevens, 2009). Since this predictor will be the focus of this research, we will elaborate on this topic later.

1.2.2. Super-diversity: How diversity may influence pupils' sense of school belonging

Over the last decades, populations have become super-diverse due to changing migration patterns (Vertovec, 2007). This is a tendency not only seen in Europe (Gogolin, 2002 for Germany; Vertovec, 2007 for the United Kingdom), but also in the USA (Byrnes, Kiger, & Manning, 1997).

This increased diversity puts pressure on the ideology of a nation-state as being linguistically and culturally homogeneous (Blommaert & Verschueren, 1991). Blommaert and Verschueren (1992) call this the dogma of homogeneity, which they define as 'a view of society in which differences are seen as dangerous and centrifugal, and in which the 'best' society is suggested to be one without intergroup differences' (p. 362).

Yet some languages do get a place, despite the strong dogma of homogeneity (Blommaert, Collins, & Slembrouck, 2005). Different languages are ascribed different values: high prestige is attributed to 'central accents' such as English, while a lower prestige is attributed to 'peripheral accents' such as Turkish (Blommaert et al., 2005, p. 202). In that way, a hierarchy of languages is constructed, which is not linked to the inherent complexity of languages, but rather ideologically composed by a certain context such as the school (Aarssen, Broeder, & Extra, 2001; Gogolin, 2002). Since many pupils with a multilingual background use languages of lower prestige at their home, they are confronted with reluctance vis-à-vis their home language at school (Gogolin, 2002).

This dogma of homogeneity and the hierarchy of languages can also be found in teachers' and pupils' ideas. Teachers often believe that multilingualism in low prestige languages harms pupils' development (Gogolin, 2002), which leads to teaching practices that ignore the multilingual background of a lot of pupils. In this way, pupils are decapitalized in the sense that they cannot use their home languages as symbolic capital in the classroom (Martín Rojo, 2013). Teachers' beliefs and classroom behavior are strongly influenced by an ideology of linguistic uniformity and thus presume a

monolingual, monocultural reality in pupils (Hélot, 2012). Similar tendencies have been seen in pupils: Agirdag (2010) found that both native monolingual and immigrant bilingual pupils (14 to 17 years old) believed home languages other than the dominant language were obstacles to academic success. Similarly, Jaspers (2011) noticed that, although ethnic minority pupils often contested and made fun of linguistic hierarchies, they supported and reproduced them at the same time.

Research into the link between diversity in the school context and the schools' coherence leaves a mixed impression. Some research has been done into the effects of a school's composition on pupils' SSB, but this research has focused on ethnic, not linguistic composition (e.g., Johnson et.al, 2001; McNeely et.al, 2002). Findings indicate that highly diverse schools jeopardize pupils' SSB (e.g., Anderman & Freeman, 2004). Johnson and colleagues (2001) found that the more peers of one's own ethnic group are present at school, the higher the SSB is among pupils. McNeely and colleagues (2002) found that SSB is relatively high in ethnically segregated schools and lowest in mixed schools, whereas neither Battistich and colleagues (1997) nor Van Houtte & Stevens (2009) found significant effects of ethnic heterogeneity on SSB in the Flemish context. Research has thus either shown a significant negative effect of diversity on SSB, or no effect at all.

1.2.3. Experiencing diversity: How diversity pushes teachers into new perspectives on multilingualism

Many teachers find that dealing with diversity is difficult (Dooly, 2005). Very often, they feel unprepared to teach multilingual pupils (Coleman, 2010; Hélot, 2012). Although research shows that for most multilingual pupils, learning disadvantages originate rather from socio-economic backgrounds than from multilingual practices at home (Van der Slik, 2006), teachers persist in seeing multilingualism in low prestige languages as an important source of learning difficulties (Van den Branden & Verhelst, 2007). This leads to the belief that it is in the best interest of pupils to suppress linguistic diversity in classrooms (McLaughlin, 1992). Ramaut and Sierens (2011) observed that the home language of pupils was banned from the classroom and teachers advocated a maximum exposure to the dominant language. Allowing home languages in the classroom makes teachers uncomfortable; they feel they are losing control of what happens (Berben, Van den Branden, & Van Gorp, 2007).

More experience with a diverse pupil population seems to help teachers to cope with challenges resulting from linguistic diversity. Various studies have found a positive impact of teachers' exposure to diversity on attitudes towards diversity at school (Pohan, Ward, Kouzekanani, & Boatright, 2009). Youngs and Youngs (2001) found a positive effect of diversity in their contacts with multilingual pupils on teachers' attitudes. Teachers working with diverse pupil populations have more familiarity and contact with them, and those teachers' attitudes are more positive than those of teachers without these experiences. Youngs and Youngs' (2001) research, however, has only focused on teachers' attitudes, while this article will focus on tolerant practices towards multilingualism reported by teachers. Qualitative observations in very diverse classrooms show a strong monolingual ideology in teaching practices (e.g., Cekaite & Evaldsson, 2008), although teachers do allow multilingualism on rare instances and in rather small amounts in classrooms that bring together children with very diverse linguistic backgrounds (Cekaite & Evaldsson, 2008; Lee, Lewis, Adamson, Maerten-Rivera, & Secada, 2007).

There is, thus, a tension between the strong emphasis of the teacher on the use of the dominant language as the language of instruction, interaction and learning in the classroom, and the positive effects of linguistic diversity on language attitudes. This tension might be due to the exposure of teachers to influences at macro, meso and micro levels (Ricento & Hornberger, 1996). At the macro level, mainstream language ideologies might prescribe how teachers should manage pupils' multilingual repertoires. Pulinx and colleagues (2016) found that as much as 77% of Flemish teachers agreed that non-Dutch-speaking pupils should not be allowed to speak their home language at school, a belief that strongly mirrors the ideology of the Flemish government. Nevertheless, this also means that 23% of teachers do not support the official policy (Pulinx et al., 2014). On the meso level, the school context can influence teachers through differences in school vision and teacher team characteristics, such as the language beliefs expressed by teacher colleagues (Ricento & Hornberger, 1996). Teachers in very mixed schools might be additionally affected by the extra teacher training focusing on diversity that is often provided in these schools (Tatar & Horenczyk, 2003). It might therefore be that teachers in more diverse schools think more positively about multilingualism. At the micro level, every teacher brings different life experiences to school (Ricento & Hornberger, 1996). Some teachers might have experience with multilingualism in their own home context while others do not. The perspective that teachers are influenced by a large array of possible experiences and perspectives clarifies why teachers always possess some

capacity to oppose to the philosophy of both macro and meso levels (e.g., Shohamy, 2006). Some teachers might be ‘soldiers’ advocating a certain ideology (Shohamy, 2006), while others might also invest in changing or opposing those ideologies on macro or meso levels (Galdames & Gaete, 2010; Hélot, 2010; Menken & García, 2010). That contrast might even be seen as a continuum on which teachers can take in-between positions: research by Creese and Blackledge (2011) has noted that teachers might explicitly express beliefs of separate bilingualism in their discourse, but this does not always match their practices of flexible bilingualism in the classroom. The link between ideology, a school’s point of view and teachers’ beliefs and practices is thus not straightforward.

1.2.4. The role of teachers for pupils’ sense of school belonging: applications to pupils’ multilingualism

Teachers are important for developing pupils’ SSB. Former research has shown the important aspects for pupils to build a strong SSB, but these have not yet been linked to teaching practices concerning multilingualism before. In what follows, we argue that a link might exist between both. On the one hand, research shows that for children to feel involved in school life, it is important that they feel teachers hold high expectations of them (Blum, 2005). When teachers do not value all languages equally, some pupils might feel teachers hold lower expectations of them (Agirdag, 2010). Most of the languages that pupils with a multilingual background speak are seen as languages of low prestige (Aarssen et al., 2001; Gogolin, 2002). Therefore, these pupils often hear they have to concentrate on the dominant language, while their home languages are portrayed as barriers for school success (Agirdag, 2009; Van den Branden & Verhelst, 2007). In this discourse, emphasis is laid on pupils’ weaknesses, resulting in pupils’ impressions that teachers do not believe in them. Doing this enforces pupils’ feelings that teachers do not believe in them (e.g., Agirdag, 2010) and might jeopardize pupils’ SSB. On the other hand, to make pupils feel connected to school, they need to feel supported by teachers (Blum, 2005) and this might be something that is lacking for multilingual pupils in a monolingual school context. Teachers always act in a way that they think is in the best interest of children: following the dominant language ideology motivates them to ban home languages from the school context to invest as much as possible in the dominant language (Pulinx et al., 2014). Multilingual pedagogies (García & Flores, 2012), however, can inspire teachers regarding how to support linguistic minority pupils appropriately.

In this respect it is important to take the multilingual competencies of pupils into account, so that they can use them in their learning. Teachers in Flemish schools struggle with recognizing knowledge of languages of low prestige as an asset in the learning process due to a monolingual language ideology and hierarchy of languages. Therefore, pupils themselves tend to perceive their home languages as having no didactical capital and thus useless in the learning process (Agirdag, 2010; Heller, 1999; Pérez Milans, 2006). García (2013) advocates the integration of the multilingual repertoires of pupils in the classroom, since the multilingual mind uses different languages simultaneously. Although this is often perceived as a deficit, it is the natural way in which the multilingual brain 'languages' (Chung, 2006; Kroon, 2015). Cummins (2008) also states that the separation of the languages of a multilingual pupil is counterproductive for learning. Sierens and Van Avermaet (2014) made suggestions about how the learning process can benefit from the multilingual resources for learning, while teachers who teach in a very diverse setting do not need proficiency in every language represented in their classroom.

Language is a way of expressing pupils' identity (Rampton, 2006); as Cummins (2001, p.19) said, 'to reject a child's language in the school is to reject the child'. The linguistic repertoires that pupils possess should thus rather be utilized to the benefit of learning. Linking what is known about SSB to knowledge on teaching practices towards multilingualism, suggests that differences in how teachers deal with multilingualism might resonate in pupils' feelings towards school.

1.2.5. Research questions

The first research question is how the linguistic composition of a school influences pupils' sense of belonging. The focus will be the operation of the 'dogma of homogeneity' (Blommaert & Verschueren, 1992) in the classroom. Is it true that linguistic diversity at school leads to lower SSB? The second research question is whether the relation between a school's linguistic composition and SSB is mediated by the tolerant practices of teachers toward multilingualism in school. Research has shown that exposure to diversity leads to tolerant attitudes (e.g. Youngs & Youngs, 2001), but does this also count for practices? How do these tolerant practices impact pupils' SSB?

1.3. Study setting

In Flanders, the Dutch-only language ideology has a long history and a lot of advocates (Van Velthoven, 2011; Wils, 2009). When Belgium was founded in 1830, French was the official language used for administration and education (Wils, 2009). Due to processes of sub-state nation building, the dominance of French became contested by Flemish (Blommaert, 2006): Dutch varieties, which later on became more standardized, were seen as an important factor in these processes and Dutch was gradually enforced as an official language in Flanders (Van Velthoven, 2011). Notwithstanding that the Dutch language has gained a very strong position as official language nowadays, a certain nervousness about the presence of other languages persists (Blommaert & Van Avermaet, 2008). The Dutch-only language ideology still has consequences for minority populations and incoming migrants (Blommaert & Verschueren, 1992, Agirdag, 2009).

Dutch is believed to be an indispensable factor for educational and professional success, while in a lot of situations in the large cities the knowledge of other languages is more useful than that of Dutch (Blommaert & Van Avermaet, 2006). Although reality shows that Flanders is a multilingual region, the knowledge of Dutch is still key to policies in Flanders (Blommaert & Van Avermaet, 2006). For instance, one is required to show the willingness to learn Dutch before being considered for social housing. Dutch language proficiency is believed to be an important aspect of being a member of Flanders (Blommaert & Van Avermaet, 2008).

Flanders, however, has a very diverse linguistic landscape, with 13.3% of the population being of foreign background (data from 2008) (non-profit data, 2011, 2012). More than 16% of the primary school pupils speak a language other than the dominant language at home, and this proportion is still increasing (personal communication, Agentschap voor Onderwijsdiensten, October 26, 2012). It is unknown how many inhabitants speak which languages in Flanders (Van Velthoven, 2011; Wils, 2009), although an informed guess can be made from the ethnic background of the inhabitants. The largest groups registered as foreigners living in Flanders are Dutch, Moroccans, Italians, Turks and French (in this order, Brussels excluded, data from 2006) (Statbel, 2012). In Brussels, more than half of the population uses at least two languages at home, with languages other than Dutch or French as strongly growing home languages (Janssens, 2013). Data from 2000 show that Dutch the sole home language in only 18% of the homes of pupils in the Dutch-speaking schools in Brussels (Verlot, Delrue, Extra, & Yagmur, 2003).

Languages besides Dutch that are most often spoken at home are French, Arabic, English, Turkish, Spanish and Italian.

A clear tendency towards a Dutch-only attitude and policy can be distinguished in Flemish schools (Smet, 2011), but schools and individual teachers deal with different languages in a variety of ways (e.g. Galdames & Gaete, 2010). The dogma of homogeneity and hierarchy of languages might be very powerful (Blommaert & Verschueren, 1992), but does not entirely determine teacher behavior.

1.4. Methodology

After discussing the sample used for this study, we will review the measures that have been added in the multilevel regression analysis (both on the school level and on the pupil level). At the end of the methods section, there is a section on research design in which we explain how the analyses have been built up.

1.4.1. Sample

The data originate from a survey in 67 primary schools in Flanders. We conducted multistage sampling. First, we selected three Flemish regions with linguistically diverse populations and then schools within these regions. Since schools are swamped with requests to participate in research, the response rate is rather low (31% of the initial sample participated). They use a 'first come, first served'- practice, which results in a response that is unrelated to schools' linguistic composition. Schools decide which research to participate in on the basis of when they are invited and whether a commitment to a research team can be combined with the existing workload at that time. The data were gathered between October and December 2012 as part of the Validiv-project (censored for reasons of anonymity). Of the pupils, 95.8% were present during our visit and 75.4% of teachers completed the survey, resulting in a participation of 1761 4th-graders and 1255 teachers.

1.4.2. Measures

Dependent variable - The dependent variable is sense of school belonging. The original scale contains ten items inspired by Eccles and colleagues (1997) that were translated

into Dutch. Using a confirmatory factor analysis, we selected items that loaded higher than 0.3 on one component. Eight items were selected and the Cronbach's alpha for this scale was 0.76. An example of an item is: 'I really feel at home at school'. The scores on each item ranged from 1 (completely agree) to 5 (completely disagree), they were averaged, yielding a mean of 3.77 (SD = 0.7).

School level variables - Three measures have been used at the school level: linguistic diversity of the pupil population, tolerant practices towards multilingualism in teachers and the mean SES of the school.

Linguistic diversity is considered at the school level. It is measured by using the Herfindahl index (Dronkers, 2010; Putnam, 2007) applied to linguistic composition by taking both group size of every linguistic group present and the diversity in linguistic groups into account. The index is calculated using this formula: $-1 \times [(proportion\ linguistic\ group\ 1)^2 + (proportion\ linguistic\ group\ 2)^2 + \dots + (proportion\ linguistic\ group\ n)^2] + 1$. Values for this index range from 0 to 1, with a value of 0 indicating that only one home language is present at school; this could be Dutch or any other language. A value of 1 indicates that every pupil in the school uses a different language at home. The average linguistic diversity in this study is 0.4 with a standard deviation of 0.21.

Tolerant practices toward multilingualism are measured in teachers using a four-item scale. We introduced the items by stating 'Every teacher has a proper way of teaching. These statements deal with what you would tolerate or not if you were teaching pupils with a home language other than Dutch.' Then the four items were given. They all started with 'Pupils are allowed to use a different language than Dutch in order to', followed by four situations: 'to explain the content to another pupil', 'in class', 'on the playground' and 'during group work'. Item correlation substitution was used for missing values (Huisman, 2000). We replaced missing values in an item by the value of the item correlating most highly with that item. This reduced missing values from on average about 20% in the original items to about 11% in the items that were used for scale construction. Confirmatory factor analysis showed all items measure the same underlying concept and the scale's Cronbach's alpha was 0.86. We compared the reported tolerant practices by the teachers with the perceived tolerant practices by the pupils – measured by the same items, only reformulated from the point of view of the pupils - and found that both correlated strongly ($r = 0.669$). This indicates that no important social desirability bias for this measure exists. On average, teachers scored 2.22 on a scale from 1 to 5 with a standard deviation of 1. Tolerant practices toward

multilingualism were thus rather rare. We used the intraclass correlation coefficient (ICC, based on a one-way ANOVA and calculated as $(\text{Between Mean Square} - \text{Within Mean Square}) / \text{Between Mean Square}$) to assess if teachers' tolerant practices toward multilingualism were shared at the school level. The ICC was 0.91, indicating that teachers within schools resemble each other more than teachers from different schools (Shrout & Fleiss, 1979), which legitimized aggregation to the school level. By aggregating this characteristic, measured in teachers, to the school level, we were able to enter it into the multilevel model that was based on pupil data. We aggregated the measure by taking the mean and used that mean as a school level variable. The mean of this aggregated measure is 2.23 (SD=0.63).

To measure the mean SES of a school, we used the ISCO-coding system to construct an ISEI scale (Ganzeboom & Treiman, 2013) (see *infra*). Then we aggregated this to the school level by taking the mean of the SES scores of the fourth-graders in a school. The average of the schools' SES is 49 with a standard deviation of 13.

Pupil level variables - At the pupil level, we included five variables: self-assessed multilingual proficiency, SES, ethnicity, gender and grade retention. Pupils' self-assessed multilingual proficiency is a categorical variable that indicates how pupils assess themselves in different languages. It resulted in the inclusion of three dummies in the model: (1) Dutch dominant bilinguals are pupils who assess their Dutch as good or very good, while scoring themselves lower at their other language; (2) other language dominant bilinguals assess their other language as good or very good while they assess their Dutch as not that strong; (3) balanced bilinguals are pupils who assess their skills in both languages as good or very good. These dummies are compared to the reference category: pupils who only speak Dutch at their homes. In our sample we found 191 children from Dutch-only homes, 181 Dutch dominant bilinguals, 39 other language bilinguals and 947 balanced bilinguals.

We used the ISCO-coding system to construct an ISEI scale to quantify the SES of pupils (Ganzeboom & Treiman, 2013). The occupation codes based on the parents' questionnaire were used, but when these were missing we used data from the pupils. This was the case for 37% of the pupils. The scores in this sample ranged from 0 to 100, with a mean of 50 and a standard deviation of 22.

To define the ethnicity of pupils, we first looked at the birthplace of the grandmothers; if this was missing we looked at the parents' birthplace. For this study we categorized

pupils in five ethnic groups: Turkish (13.17%), Moroccan (11.17%), Dutch (2.39%), Belgian (48.53%) – the reference category – and other descent (24.22%).

We included the pupils' gender, with the same number of girls and boys in our sample. Since we did not have GPA scores, we chose to use grade retention as a crude indicator of achievement. Grade retention – as reported by the pupils - was included, with 25% of the pupils ever repeated a grade.

Table 5: Descriptive statistics for dependent and independent variables: frequencies (%), means and standard deviations

Variables	Mean (SD), %	N
Pupil level		
Sense of School Belonging (range 1.25 – 5)	3.77 (0.7)	1768
Self-assessed multilingual proficiency		
Dutch dominant bilinguals	10.86%	1667
Other language dominant bilinguals	2.34%	1667
Balanced bilinguals	56.81%	1667
Dutch-only home	11.46%	1667
Ethnicity		
Moroccan	11.7%	1838
Turkish	13.17%	1838
Dutch	2.39%	1838
Belgian	48.53%	1838
Other descent	24.22%	1838
Gender	50%	1768
Grade retention	25%	1745
SES (range 14-89)	50.13 (22.46)	1774
School level		
Linguistic diversity (range 0-0.78)	0.42 (0.22)	67
Tolerant practices toward multilingualism (range 1.30 – 4.38)	2.23 (0.63)	66
Mean SES (range 28 – 76.25)	49.13 (12.90)	67

1.4.3. Research design

Since pupils in the sample were nested in schools and we included variables into the analysis of pupil and school level, we used multilevel regression analysis. In our model, no random slopes were included, only a random intercept. We started with the unconditional model to determine the amount of variance of SSB at the school level.

Then, we included the indicator of linguistic diversity (Model 1). Next, the schools' SES composition in the model was entered (Model 2), which is a common control variable in research into school level effects on pupils' SSB (e.g. Johnson et al., 2001; Demanet & Van Houtte, 2012) to distinguish the effects of socio-economical and linguistic composition of a school. To check whether these effects hold even when controlling for individual characteristics, we entered the pupil level variables that have been demonstrated to relate to SSB (Model 3). The pupil features we included were self-assessed multilingual proficiency, grade retention, ethnicity and gender. Self-assessed multilingual proficiency was included to establish the effect of linguistic composition above and beyond the individual effect of multilingual proficiency. Gender and ethnicity were controlled for since they have been demonstrated to relate to sense of belonging (for gender see Anderman, 2003; for ethnicity see Goodenow, 1993; Demanet & Van Houtte, 2012). Grade retention was taken into account since prior achievement was shown to be related to pupils' sense of belonging (Ma, 2003). In the fourth model, we included tolerant practices toward multilingualism, since we wanted to find out if tolerant practices toward multilingualism mediated the relationship between a school's linguistic composition and pupils' belonging. In the last model (model 5), we then included interaction effects between tolerant practices toward multilingualism and self-assessed multilingual proficiency. In that way, we could assess whether the effect of tolerant practices varied between pupils with different multilingual backgrounds.

1.5. Results

The unconditional multilevel analysis (pupils nested within schools) indicated that 8.7% of the variance in SSB was between schools (variance between schools = 0.043, $p < 0.05$).

The first research question focused on the effects of a school's linguistic composition on sense of belonging. Linguistic diversity did not impact SSB significantly (table 6, model 1), nor did it have any significant effect when we entered the control variables at the school and pupil level (table 6, models 2 and 3). In model 2 we included the schools' SES-composition, which did not impact SSB either. In model 3 (table 6) we controlled for the pupil characteristics. The self-assessed multilingual proficiency was associated with the SSB in pupils. The group of Dutch dominant bilinguals ($\gamma = -0.171$, $p < 0.01$) and other language dominant bilinguals ($\gamma = -0.525$, $p < 0.001$) scored significantly lower on SSB than pupils from a Dutch-only home. We found no difference in SSB between balanced bilinguals and pupils from a Dutch-only home. Girls ($\gamma = 0.32$, $p < 0.001$) had a higher SSB

than boys. Pupils who had repeated grades ($\gamma = -0.108$, $p < 0.01$) scored lower on SSB than pupils who had not. The effects of ethnicity and pupils' SES were not significant.

To answer the second research question, we entered tolerant practices into the model (table 6, model 4). Tolerant practices proved to be significantly related to SSB ($\gamma = 0.107$, $p < 0.05$) and in this step the effect of linguistic diversity became borderline significant ($\gamma = -0.29$, $p < 0.1$). This indicated that, since tolerant practices were positively correlated with linguistic diversity ($r = 0.258$, $p < 0.05$), teachers compensated for the negative effects of linguistic diversity by being slightly more tolerant toward multilingualism in linguistically diverse schools. This trend indicated a suppression effect rather than the expected mediation effect. The difference between a mediation and suppression effect is what happens to the direct effect between independent and dependent variable when adding a third variable (see also MacKinnon, Krull, & Lockwood, 2000). Introducing a mediating term to the model makes the direct effect between independent and dependent variables disappear. In the case of suppression, introducing the third variable (the suppressor) causes the relationship between the independent and dependent variable to become larger. Since the latter is the case for our results, teachers' tolerant practices towards multilingualism functions as a suppressor in the relationship between linguistic diversity and pupils' SSB.

We conducted additional analyses (not shown) on various types of diversity (socio-economic and ethnic) to exclude the possibility that other types of diversity had provoked the found effect of linguistic diversity. These analyses showed that the effects of linguistic diversity held even when controlling for other aspects of diversity.

The associations between self-assessed multilingual proficiency and sense of belonging did not change when adding tolerant practices to the model (table 6, model 4). Tolerant practices did not temper the negative effects of self-assessed multilingual proficiency on SSB. This unexpected result raised the question whether the impact of tolerant practices on SSB differed for pupils with various self-assessed multilingual proficiencies. In the final model, we used cross-level interaction terms to test this. Analysis showed that the benefits of more tolerant practices toward multilingualism at school were equal for other language dominant bilinguals and balanced bilinguals as well as pupils from Dutch-only homes. For Dutch dominant bilinguals, we discovered another trend ($\gamma = -0.209$, $p < 0.1$). This interaction term was borderline significantly negative, indicating that Dutch dominant bilinguals tended to have lower SSB in a more tolerant school environment. Since this result surprised us, we will elaborate on this in the discussion section.

Table 6: Association between linguistic diversity, tolerant practices and sense of school belonging.

	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	3.764***	3.763***	3.763***	3.668***	3.669***	3.679***
School level						
Linguistic diversity		-0.16	-0.263	-0.204	-0.29°	-0.28°
Tolerant practices					0.107*	0.174*
Mean SES school			-0.004	-0.003	-0.003	-0.003
Pupil level						
Gender (reference category = boys)				0.32***	0.319***	0.321***
Grade Retention				-0.108**	-0.111**	-0.111**
SES				-0.001	-0.001	-0.001
Etnicity (reference category = Belgian descent)						
Morocco				0.042	0.043	0.042
Turkey				0.068	0.061	0.062
Netherlands				-0.058	-0.048	-0.046
Other descent				0.033	0.026	0.03
Self-assessed multilingual proficiency (reference category = Dutch-only home)						
Dutch dominant				-0.171**	-0.168**	-0.172**
Other language dominant				-0.525***	-0.511***	-0.521***
Balanced bilingual				-0.056	-0.05	-0.062
Cross-level interactions						
Tolerant practices * Dutch dominant bilingual						-0.209°
Tolerant practices * Other language dominant bilingual						0.049
Tolerant practices * balanced bilingual						-0.068

Dependent variable: sense of school belonging, $p < 0.001 = ***$, $p < 0.01 = **$, $p < 0.05 = *$, $p < 0.1 = °$

The final model explained 8% of the total variance in SSB of pupils and 27.6% of its variance at the school level.

1.6. Discussion

Nowadays, pupils bring a variety of languages to the school context. But does this changing student body composition have an impact on pupils' sense of school belonging (SSB)? Many teachers find themselves unprepared to handle the situation of increased variety in languages (Coleman, 2010). Due to the specific history of Flanders, the dogma of homogeneity (Blommaert & Verschueren, 1992), the strong belief that allowing pupils to use their multilingualism at school might jeopardize the acquisition of the dominant language (Agirdag, Van Avermaet & Van Houtte, 2013), the profound influence of these beliefs on teaching practices (Hélot, 2012), and the unpreparedness of teachers to teach

diverse class groups (Coleman, 2010), motivate many schools to adopt a Dutch-only policy. Previous research, however, has shown how multilingual children use language for learning and identity formation (e.g., Chung, 2006; Jorgensen, 2005; Rampton, 2006). These insights indicate that the exclusion of multilingualism might have a considerable impact on those pupils (e.g., Cummins, 2001), which might even relate to their well-being and academic achievement.

The research questions answered in this article focus on the impact of the linguistic diversity in schools on pupils' SSB and the possible mediating effect of tolerant practices towards multilingualism in this relation. Multilevel analysis shows that the negative effect of linguistic diversity is –either consciously or unconsciously– buffered by teachers' tolerant practices towards multilingualism. Since teachers in more diverse schools are slightly more tolerant towards the usage of different languages, the negative effect on pupils' SSB does not show.

These results suggest that the 'dogma of homogeneity' (Blommaert & Verschueren, 1992) also exists in schools. Pupils in schools that are more linguistically diverse feel less connected to school. The finding that linguistic diversity comes with lower levels of SSB, points in the same direction as the findings about ethnic diversity (Anderman & Freeman, 2004; Johnson et al., 2001; McNeely et al., 2002). This finding is of course not surprising, since pupils' linguistic and ethnic background are often linked (Heath & Cheung, 2007; Verhaeghe, 2012). It seems that linguistic and ethnic diversity is an obstacle to pupils' SSB. However, if diversity goes hand-in-hand with more tolerant practices that give it a place at school, pupils' SSB is not 'harmed' by this obstacle.

Comparing these results with the literature on how diversity influences teachers' tolerance towards multilingualism, we can support the findings of Youngs and Youngs (2001). As they found that a higher linguistic diversity goes together with more positive attitudes in teachers towards multilingual pupils, we also find positive effects of linguistic diversity on tolerant linguistic classroom practices. Still, the rates of tolerant practices are rather low, even in highly diverse schools. Therefore, it might be interesting to conduct the same research in a context where multilingualism is seen as an asset for learning by teachers, and compare the effects of such an environment on pupils' SSB with the results in Flanders. We do see that teachers working in linguistically diverse schools more often contest the dominant monolingual ideology than their colleagues in less mixed schools. On the one hand, this difference might be due to teachers' experiences in diverse schools which might have shown them that a strict monolingual

policy jeopardizes pupils' emotional bonding with school and even their achievement. On the other hand, this experience is lacking for teachers in less diverse schools, which might be why they more consistently follow the dominant language ideology in their teaching practices.

We found a significant positive effect of tolerant practices towards multilingualism on sense of belonging. Nevertheless, when comparing the effects of tolerant practices on pupils with different self-assessed multilingual proficiency, it seems that Dutch dominant bilinguals suffer from a more tolerant approach. For these pupils, more tolerant teachers have a negative effect on their SSB, while for other bilinguals, we found no difference in the effect of tolerant practices compared to children from Dutch-only homes. The latter fit the monolingual norm, and their language is not an issue in the school context. The different result for Dutch dominant bilinguals might in part be explained by conflicting messages between the contexts of the home and the school: Dutch dominant bilinguals might get the message at home that they should use Dutch as much as possible. Post-hoc analyses (not shown) indicate that the parents of Dutch dominant bilinguals prioritize the maintenance of their culture of origin significantly less than parents of other language dominant bilinguals or balanced bilinguals. The monolingual ideology they come into contact with in the home context might be difficult to match with a tolerant approach towards multilingualism in school. This can lead to a feeling of conflict between the monolingual ideology they experience more often at home, and the more tolerant messages they get in school. The contexts of school and home differ in the extent to which they legitimize different languages (Bourdieu, 1977). This difference can lead to confusion in these pupils and, as our study shows, a lower SSB. However, since there are various ways in which the home and school context can interact, differ or coincide, this hypothesis should be looked into more profoundly in future research.

Our research shows that teachers working in linguistically diverse settings are more tolerant towards multilingualism in their teaching than other teachers. Therefore, in order to (further) empower all teachers, it would be helpful to inform them about the factors influencing the development of certain multilingual repertoires, inspire teachers on how they can help pupils to exploit those repertoires for learning (Sierens & Van Avermaet, 2014; Coleman, 2010), and provide teachers in less diverse settings with opportunities to gain experience in linguistically diverse schools. In that way, they might come to further insight on the complexity and huge differences between emergent bilinguals and take this into account in their teaching.

In this article, we could not explain why the pupil level effects of self-assessed multilingual proficiency remain more or less the same when we include tolerant practices and the cross-levels interactions to the model. Tolerant practices do not suffice to explain the differences in SSB between multilingual pupils and pupils from a Dutch-only home. It seems that something else is holding these pupils back from feeling involved in school. This issue should be dealt with in future research.

In future research, we plan to include data from the pupils' language use at home in our analysis. This might give us deeper insight into why Dutch dominant bilinguals feel less involved in school than pupils from Dutch-only homes.

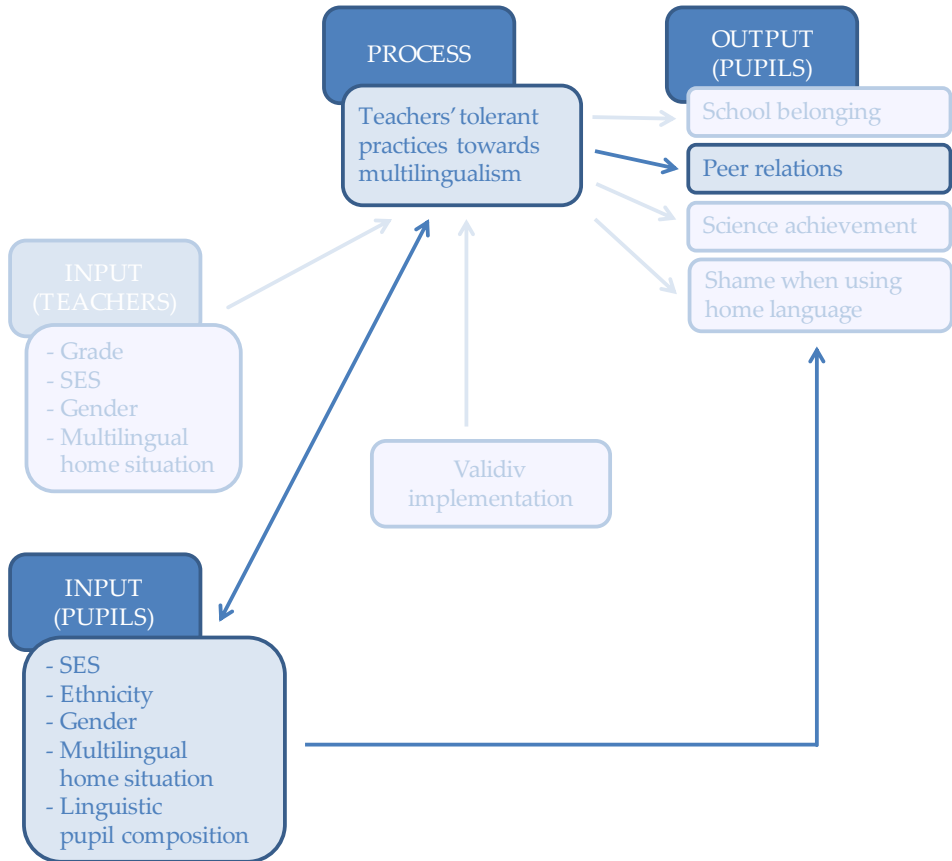
In this study, we unraveled how aspects of a school context impact on pupils' well-being, focusing on the pupil composition of schools and how schools and their teacher teams go about the linguistic diversity of their pupils. This study's conclusions support the call of several researchers who theorize about the exploitation of multilingualism in schools for the good of the pupils (e.g. Cummins, 2001; García, 2009; Sierens & Van Avermaet, 2014). However, research still has a long way to go to gain full insight into the best ways to organize education for all emergent bilinguals in mainstream education. For now we know that linguistic diversity is not necessarily negative for pupils' SSB, as long as it goes hand-in-hand with a higher tolerance rate in teachers toward multilingualism.

**2. Do birds singing the same song flock together?
A mixed-method study on language as a tool for changing
social homophily in primary schools in highly diverse
contexts in Flanders (Belgium)**

This chapter is published in International Journal of Intercultural Relations (2015), 49.

ABSTRACT - The characteristics of a school's pupil population determine the boundaries within which friendships can grow at school, as pupils tend to develop friendships with others that are similar to them. This is an example of social homophily. Since language is an indicator of social status and identity, we aim at finding out whether it is a basis for social homophily. This study investigates what the effects of linguistic diversity on same-language friendships are for both multilingual pupils and pupils from Dutch-only homes and whether tolerant practices towards multilingualism impact friendship patterns. To get a deeper understanding of the context in which friendships develop, we examine pupils' perception of the language hierarchies in their school as well. We use a mixed-method design. The quantitative data analyzed in this article originate from a teacher and pupil survey in 67 primary schools in three highly diverse regions in Flanders during the 2012-2013 school year. The qualitative data have been gathered in two focus groups in which 24 pupils of the same school participated. Stepwise multilevel modeling showed that for multilingual pupils, a negative effect of tolerant practices towards multilingualism on same-language friendships existed, while linguistic diversity was of lesser importance. For pupils from Dutch-only homes, linguistic diversity had a negative effect on the number of same-language friendships and tolerance did not matter for friendship patterns. The insignificant effect of tolerance in pupils from Dutch-only homes can be explained by the strong dominance of Dutch, which the qualitative analysis also revealed.

Figure 6: Aspects and relations in the operational model under focus in study 2



2.1. Introduction

Societies have become increasingly diverse due to migration and globalization (Vertovec, 2007). In schools, consequently, pupil populations have become very heterogeneous. Still, friendship relationships between pupils are not as diverse as would be expected from the mixed pupil populations in schools (e.g. Moody, 2001). This can be explained by social homophily. Social homophily is defined as “the principle that a contact between similar people occurs at a higher rate than among dissimilar people”

(McPherson, Smith-Lovin, & Cook, 2001, p.416). In this article, social homophily thus means that social relations follow this homophily principle.

Gender, ethnicity, age and socioeconomic status (SES) are extensively studied as motives for homophilic relationships between people (McPherson et al., 2001; Shrum, Cheek, & Hunter, 1988). Social homophily mediated by language; however, has not yet been examined in depth (for an exception see Aboud & Sankar, 2007), although it has been stated that the thorough knowledge of a common language is an important aspect in friendship relations (Dirim & Hieronymus, 2003; Gareis, 1995).

In this study we focus on friendships between pupils who differ in the languages they speak at home. The setting of this study is Flanders – the Dutch speaking, Northern part of Belgium. In Flanders, the proportion of multilingual pupils in schools is rapidly increasing. More than 16% of the primary school pupils speak at home a language other than the dominant language in society (personal communication, Agentschap voor Onderwijsdiensten, October 26, 2012). Most of the non-native pupils in primary schools are second- or third generation-immigrants who were born and raised in Belgium. In essence, all pupils in our study have a language in common, namely Dutch, the language of instruction, but multilingual pupils might be more fluent and at ease in the language they use in the home context, making that home language more suitable to build a friendship upon. We want to investigate whether and how a school's linguistic composition influences interlinguistic friendships. Since no extensive literature on language-mediated social homophily exists, we draw upon theories about interethnic contact to predict interlinguistic friendships, namely the opportunity structure theory (Blau, 1977) and the group threat theory (Blalock, 1967). Next to finding out whether a school's pupil composition influences interlinguistic friendships, we are interested in exploring how a school's stance towards multilingualism might influence friendship patterns. We use Flanders as the setting of this study, where most schools have adopted a strong monolingual policy that bans pupils' home languages from the mainstream classroom (Van den Branden & Verhelst, 2007). However, many pupils in Flemish schools grow up with a different language than the one used at school (personal communication, Agentschap voor Onderwijsdiensten, October 26, 2012). Some schools are starting to allow a minimal usage of multilingualism in the school context (Van Der Wildt et al., 2013). These tolerant practices towards multilingualism might have an influence on patterns of language-mediated homophily. By welcoming different home languages to the classroom, teachers raise the status of these languages and make them

more visible for other pupils (e.g. Aboud & Sankar, 2007). Therefore, it might be that patterns of same- and cross-language friendships shift.

This article extends research on social homophily by adding a linguistic perspective. It is one of the very few studies that looks at the influence of school composition factors on interlinguistic friendship and it is innovative in estimating the extent to which the relationship between a school's pupil population and friendship relationships is mediated by tolerant practices towards multilingualism.

2.1.1. Social homophily

People prefer similar people as their friends. This process is called social homophily. McPherson (2001, p.416) defines social homophily as "the principle that a contact between similar people occurs at a higher rate than among dissimilar people". In this article, social homophily is thus conceptualized as homophily in social relations rather than homophily due to socioeconomic status. Two processes are at work in social homophily: baseline homophily and inbreeding homophily (McPherson et al., 2001). Baseline homophily refers to the "homophily effects that are created by the demography of the potential tie pool" (McPherson et al., 2001, p. 419). This means that the composition of someone's group of friends matches the composition of the people physically surrounding that person. Inbreeding homophily, on the other hand, is "homophily measured as explicitly over and above the opportunity" (McPherson et al., 2001, p. 419). This would indicate that even when there are equal opportunities to meet different people, someone has a certain preference for some people over others.

Social homophily occurs based on similarities in ethnical origin (e.g. Shrum et al., 1988) as well as on the basis of gender. Girls tend to relate more to girls in friendships, while boys mainly have male friends (Shrum et al., 1988). Age is also an important factor in social homophily (McPherson et al., 2001). Likewise, people with the same educational or occupational background cluster together (McPherson et al., 2001). However, all these factors do not operate in isolation from each other; they may be linked. Especially ethnic origin and social background are often found to be related (e.g. Heath & Cheung, 2007; Verhaeghe, 2012 for the Flemish context), both of which are also related to the linguistic repertoires people use (Beebe & Giles, 1984; Bernstein, 1973; Bourdieu, 1992; Janssens, 2013). Due to this interdependent relationship, very strong processes of social homophily can be expected (Blau, 1977). Since similar people have similar jobs, similar

career paths and similar hobbies, they meet each other more easily (Heath & Cheung, 2007).

Although a common language is important for friendship relations to evolve (Gareis, 1995), language is less often studied as a mediator of social homophily (for an exception see Aboud & Sankar, 2007).

2.1.2. The importance of language for friendship

The importance of language for friendships is threefold. Languages are important in order to facilitate communication between friends and are also influential as indicators of identity and status. Communication between two people is a prerequisite for friendship. Even though a society might have a common dominant language, people who have grown up in a different language than the dominant language might prefer friendships in which they are able to use that language (Gareis, 1995). They might be more fluent and at ease in the language they use in the home context, making the home language more suitable to establish a friendship in. For profound friendships, a deep knowledge of a common language is important, as very complex issues might be discussed in friendships and humorous comments should be understood by both parties (Gareis, 1995).

Languages are also indicators of status and identity (Beebe & Giles, 1984; Blommaert & Verschueren, 1991; Cummins, 2001). Rather than being inherent to a language, the status of the language and the importance of that language as an indicator of identity depends on the context in which people find themselves (e.g., Extra & Yagmur, 2004). For example, a firefighter might try to hide his/her vernacular language when consulting a doctor, while in a working environment with his/her colleagues, that vernacular language might be a symbol of status (Beebe & Giles, 1984).

The status of languages is not linked to the complexity or correctness of ways of speaking but rather to the link of certain languages or language repertoires with social groups (Beebe & Giles, 1984; Bourdieu, 1992). The status of language cannot be seen independently from its relation with ethnicity and SES (e.g., Beebe & Giles, 1984). For example, African American vernacular English has a lower status in mainstream US society due to the overall lower socioeconomic status of the social group that uses that particular language repertoire the most. This example illustrates how different ethnic and social groups, develop different linguistic repertoires that differ in status depending

on the setting in which they are used. Even when people speak the same language, social background can influence the linguistic repertoire they acquire in the home context. Bernstein (1973) distinguishes between elaborated and restricted code, of which the elaborated code resembles the code used in the school context most and is more highly valued in schools.

As a process of inbreeding homophily (McPherson, Smith-Lovin, & Cook, 2001), languages might function as borders for friendship formation. Theories of interpersonal attraction state that people tend to have friends who have a status equal or higher than their own (e.g., Hallinan & Williams, 1989). Since languages differ in status, the languages people speak might influence friendship patterns.

2.1.3. Research on cross-language friendships in schools

To the best of our knowledge, only one study on the impact of language on friendship in schools exists (i.e., Aboud & Sankar, 2007). Aboud and Sankar (2007) have looked at how linguistic hierarchies in a Canadian school providing multilingual education (French-English) affect friendship formation. They hypothesized that the language of instruction might have a higher status than other languages; likewise, they stated that the linguistic group which is targeted in an educational system might also have a high status. However, these presumed status differences did not result in pupils' preference for friends of one language or the other.

Aboud and Sankar's study (2007) did not find that friendship patterns differ depending on language and revealed some barriers for cross-language friendships. They found that cross-language friends were hard to keep, as they had less opportunities to meet up outside of schools than same-language friends. It was also found that friends from different language groups opposed to being mixed. This process was called "the loyal member effect" by Castelli, Sherman and De Amicis (2007) in the context of interethnic friendships.

2.1.4. How the school composition constrains friendship formation

The formation of friendships between pupils depends on the schools' composition (e.g., Hallinan, 1982; Moody, 2001). Since little research has been done on language-mediated social homophily in schools (see Aboud & Sankar, 2007 for an exception), this study relies

upon research about cross-ethnic friendships in schools. Since language, ethnic descent and culture are often seen as a whole (Blommaert & Verschueren, 1992), it might on the one hand be that language can play a role in ethnic homophily and on the other hand, that ethnicity might be an explaining factor for language-mediated social homophily.

Opportunity structure theory states that in heterogeneous populations, friendships also tend to be mixed (Blau, 1977). Moreover, the degree of diversity in someone's friendships depends on the relative size of someone's group: intergroup friendships occur more often in members of small groups than in members of larger groups (Blau, 1977; confirmed for the educational context by Van Houtte & Stevens, 2009). Group threat theory looks at this relative group size to predict interethnic relations (Blalock, 1967). This theory is especially suitable for settings in which only two different groups are present (Goldsmith, 2004). Group threat theory states that when two groups approach a fifty-fifty distribution, minority-majority conflict will peak (Blalock, 1967). Thus, a curvilinear relationship exists between the heterogeneity in ethnic background and positive intergroup contacts (Blalock, 1967), a finding that has been confirmed in the school context as well (e.g., Fischer, 2008). Moody (2001) tried to translate group threat theory so it would be suitable for a super-diverse context with more than two ethnic groups. On the one hand, he stated that a situation with two groups in a fifty-fifty constitution was a fertile soil for the development of an "us vs. them" dynamic (Moody, 2001, p. 708). On the other hand, he suggested that with a higher diversity rate, interethnic relations would be less subject to tensions, since such situations were similar to a situation of low heterogeneity where no single group is dominant over another (Moody, 2001).

The next section will focus on how language, and more specifically the school's policy towards the home languages of pupils, might influence how pupils perceive the heterogeneity of the school's population, group threat and the status of different groups of pupils. We therefore also look at to what extent this affects friendships among pupils.

2.1.5. How a school's stance towards multilingualism might influence friendship formation

Traditionally, education is provided in the dominant language of the school's environment. Nowadays, however, populations have become super-diverse in terms of ethnic background and home languages (Vertovec, 2007). Teachers often do not know

how to handle the linguistic diversity pupils bring to school (Agirdag, 2009; Coleman, 2010; Johnson, 2012; Sierens & Van Avermaet, 2014). Many teachers believe that allowing linguistic diversity in the school context will have negative consequences with respect to pupils' learning (Creese & Blackledge, 2010; Dooly, 2005; García, 2009). Teachers question the cognitive benefits of including languages other than the dominant language in the learning process and think that using only the dominant language in school is in the best interest of all pupils (Cummins, 2001, 2007, 2008; McLaughlin, 1992). This leads to teaching practices that discourage multilingualism and ignore the multilingual background of many pupils (e.g. Gogolin, 2002). The informal context of peer relations at school is often seen as a context in which pupils also should focus on the acquisition of the dominant language (Strobbe, 2015). The monolingual policy at the playground is primarily focused on stimulating pupils to speak only Dutch at school, and only to a lesser extent on preventing ethnic segregation in friendship groups (Strobbe, 2015): Moroccan and Congolese pupils talking in French is seen as equally 'detrimental' for pupils acquisition of the dominant language as two Ecuadorian pupils communicating in Spanish. Thus, in this monolingual discourse, speaking the majority language is regarded as an indispensable part of integration in society and to include all pupils at school. Therefore it is seen as desirable.

Due to the disfavoring beliefs towards multilingualism, the home languages of many pupils have a low status in schools (Blommaert, Creve, & Willaert, 2006). Home languages are very often rejected at school, causing pupils to see their languages as lacking any didactical capital. The home languages of ethnic minority pupils therefore hold a lower status than the language of instruction (e.g. García, 2009; Gogolin, 2002).

Sociolinguistic research has centered on the teaching realities in multilingual classrooms (e.g. Cummins, 2001; García, 2009). In contrast to the practices in a lot of schools, the integration of multilingual realities in education is strongly encouraged by this field of research for pupils to feel good at school and achieve academically.

Giving multilingualism a place at school might equalize status differences between linguistic groups by granting legitimacy to pupils' home languages. It remains the question, though, whether raising the status of home languages in teachers' practices indeed increases pupils' perception of the status of those languages (also noted by Aboud & Sankar, 2007).

Allport's contact hypothesis (1979) provides an explanation of why differences in status between groups might influence the significance of language for friendship formation.

Equal group status is one of the conditions (besides intergroup cooperation, common goals and authority support) for intergroup contact to diminish out-group stereotypes (Allport, 1979). The opportunity to become friends is believed to be encouraged by Allport's four conditions, as these are thought of to constitute the ideal conditions for friendship formation (Pettigrew, 1998). Therefore, pupils of different linguistic groups might become more sociable across borders of language when multilingualism is more convincingly welcomed at school.

Next to changing status relations between groups, welcoming pupils' multilingual backgrounds in the school context might also change the perceptions pupils have of the composition of their school's population and therefore moderate the impact of a school's composition on friendship patterns among pupils. According to the opportunity structure theory (Blau, 1977), language may become more important as a basis for social homophily when minority languages are tolerated and supported at school. Pupils might adapt their friendship choices more to their home language, becoming aware of differences or similarities between themselves and other pupils when schools welcome multilingualism and the home languages of pupils thereby become more visible. The increased visibility of different groups might also alter feelings of threat for different linguistic groups (Blalock, 1967). Tolerating multilingualism at school might underline the presence of multilingual pupils and suddenly put non-dominant groups in a positive light; processes that might be threatening for the dominant linguistic group at school. This might cause pupils from the dominant linguistic group to make a defensive move by increasingly selecting other dominant group members as their friends.

2.1.6. Research questions and hypothesis

The first research question rising from this literature is how the linguistic composition of a school influences pupils' same-language friendship patterns with peers. Is language diversity in schools a basis for social homophily? The second research question looks at whether tolerant practices of teachers towards multilingualism have an influence on same-language friendship patterns of pupils. Could it be that tolerant practices towards multilingualism influence patterns of inbreeding homophily?

The theoretical framework gives some indications for hypotheses to these research questions. With respect to the first research question, we hypothesize that (hypothesis 1) an increased linguistic diversity in schools will result in less social homophily based on

language. The literature does not offer a clear answer to the second research question. Research on status differences (Aboud & Sankar, 2007; Allport, 1979) suggests that homophily might decrease when status differences also decrease, whereas opportunity structure theory (Blau, 1977) and threat theory (Blalock, 1967) suggest that social homophily might increase when differences between groups become more visible. We accordingly formulate two opposite hypotheses regarding the second research question: Teachers' tolerant practices towards multilingualism result in decreased homophily based on language (hypothesis 2) and teachers' tolerant practices towards multilingualism result in increased homophily based on language (hypothesis 3).

The third research question aims at finding out whether the linguistic status differences that inspire monolingual teaching practices are also found in pupils. It focuses on how pupils express differences in language status among the languages in their schools and thus whether the tolerant practices towards multilingualism that are implemented by teachers are supported by pupils.

2.2. Research setting

Although Dutch is believed to be an indispensable factor for educational and professional success in Flanders, in a lot of situations in the large cities, such as while shopping or talking to friends or neighbors, other languages are more represented than Dutch (Blommaert & Van Avermaet, 2006). After all, Flanders has a very diverse linguistic landscape, with 13.3 % of the population being of foreign background (data from 2008) (non-profit data, 2011, 2012). Primarily Italian, Turkish and Moroccan migrants came in during the 1960s, having been invited by the Belgian industry to work in mines or factories (De Gendt, 2014). Today's migration consists of family reunifications for migrants already living in Belgium and the internal European migration of both single workers and families (Verhaeghe, Van der Bracht, & Van de Putte, 2012). Most of the non-native pupils in primary schools today are thus second- or third generation-immigrants who were born and raised in Belgium. More than 16 % of the primary school pupils speak a language at home other than the dominant language in society (personal communication, Agentschap voor Onderwijsdiensten, October 26, 2012), very often the usage of that other language is combined with the usage of the dominant language (Van Avermaet, 2008). This proportion of multilingual pupils is still increasing (personal communication, Agentschap voor Onderwijsdiensten, October 26, 2012). It is prohibited in Flanders to count how many inhabitants speak a certain

language (Van Velthoven, 2011; Wils, 2009; De Wever, 2003), but an informed guess can be made from the ethnic background of the inhabitants. The largest groups registered as foreigners living in Flanders are Dutch, Moroccans, Italians, Turks and French (in this order, Brussels excluded, data from 2006) (Statbel, 2012). In Brussels, more than half of the population uses at least two languages at home, with languages other than Dutch or French as strongly growing home languages (Janssens, 2013). Data from 2000 show that in only 18% of the homes of pupils in the Dutch-speaking schools in Brussels is Dutch the only home language. Languages besides Dutch that are most often spoken at home are French, Arabic, English, Turkish, Spanish and Italian (Verlot, Delrue, Extra, & Yagmur, 2003). Notwithstanding that, reality shows that Flanders - and even more so the areas with a lot of migrants on which this study focuses - is a multilingual region, the conditional knowledge of Dutch is still of great importance to policies in Flanders (Blommaert & Van Avermaet, 2006; Gysen et al., 2009). For instance, in Brussels, children of parents who do not dispose of a certain certificate of Dutch are disadvantaged when it comes to enrollment in a Flemish secondary school. Dutch language proficiency is believed to be an important aspect of being a member of Flanders (Van Velthoven, 2011; Wils, 2009; De Wever, 2003; Pulinx & Van Avermaet, 2013). Language policy based on a monolingual language ideology is often used to exclude certain groups from opportunities to social mobility (Bourdieu, 1992). The dominant social class in Flemish society is said to be closing ranks in order to exclude the non-dominant class from upward social mobility. It is seen as a mechanism of great importance in the nation-building process, initiated by the dominant social class in order to ensure its dominance (Blommaert, 2006).

The clear tendency towards a monolingual Dutch-only policy that can be seen in many domains in Flanders persists in Flemish schools, but schools and individual teachers deal with different languages in a variety of ways (Blommaert & Van Avermaet, 2006). The dogma of language homogeneity is very powerful (Blommaert & Verschueren, 1992), but teachers tend to blend these views with practices that they think are suitable for their classroom situation and for the specific pupil population they teach (for USA e.g., English & Varghese, 2010; for Chile e.g., Galdames & Gaete, 2010).

2.3. Methodology

This study combines quantitative and qualitative methodology. The first and second research questions will be answered using large-scale data from teachers and pupils in

Flemish primary schools. The third research question will be addressed using qualitative data derived from focus groups with primary school pupils. Qualitative data were mainly used to frame the quantitative results and to better understand how these quantitative results can be explained (QUAN → qual (Morse, 1991)). Therefore, this research fits within the type of “partially mixed sequential dominant status design”, with a dominant quantitative part (Leech & Onwuegbuzie, 2009). Following the logic of our research questions, we start the methodological part with the quantitative methodology, followed by a description of the qualitative methods.

2.3.1. Quantitative sample

The quantitative data for this study originates from a survey conducted in 2012-2013 in 67 primary schools in three highly diverse regions in Flanders (the mining region in Limburg, and the cities of Ghent and Brussels). The sample was not intended to be representative for the whole Flemish context, but rather focused on regions with highly diverse populations due to migration. We used a multistage sample, selecting three regions with linguistically diverse populations. Official data on schools allowed us to distinguish schools with different linguistic compositions within these regions, since the number of children that used another language than Dutch at home was registered for every school. We created three categories in this respect: ‘white’ schools (where < 10 % children were from homes where another language was spoken), ‘grey’ schools (where > 10 % and < 50 % children were from homes where another language was spoken), ‘black’ schools (where > 50 % children were from homes where another language was spoken). Schools within the regions were selected, including sufficient schools of each type from each region. Every time a school refused to participate in the study, a school from the same region and of the same linguistic composition category was randomly selected. The final sample of schools provided us with a wide range of linguistic compositions and schools varying strongly on a scale of very tolerant to rather intolerant of multilingualism (See descriptive statistics in table 7). The data were gathered between October and December 2012 as part of the Validiv project (Valorising Linguistic Diversity in Multiple Contexts of Primary Education). Since schools are swamped with requests to participate in research, the response rate was rather low (31 % of the initial sample agreed to participate). Schools decided which research to participate in on the basis of when they were invited and whether a commitment to a research team could be combined with the existing workload at that time. Of the pupils, 95.8% and 75.4% of

teachers completed the paper-pencil-survey, resulting in a participation of 1761 4th-graders and 1255 teachers. Pupils completed the survey in their classrooms with the supervision of two researchers who provided them with explanation when needed. Researchers prepared together for the data gathering in order to minimize a possible bias created by the supervision of a certain researcher. Teachers were requested to refrain from interfering when pupils filled out the questionnaires in order to provide the pupils with a safe environment to report on teacher behavior amongst other topics. No talking was allowed between pupils when filling out the questionnaires.

It is noteworthy that every pupil in our sample has at least a minimal knowledge of Dutch, considering that Dutch is the official language of instruction in Flemish schools. Since multilingual pupils and pupils who speak only Dutch at home might differ with respect to their friendship choices, we decided to split the data set (with useful information on 1487 pupils) into two samples: one for the Dutch-only pupils (N=483) and one for the multilingual pupils (N=1004). For further discussion of the reasons for this splitting, we refer to the section about the mixed-method research design (cf. *infra*). Analyses were first performed on the entire data set before analyzing the two groups separately.

2.3.2. Measures

Dependent variable - For the dependent variable, we assessed pupils' same-language peer friendships using two questions. The pupils from a Dutch-only home were asked how many of their best friends spoke only Dutch at home, while multilingual pupils were asked how many of their best friends spoke the same language as they did at home. Possible answer categories ranged from 1 (none of my best friends) to 5 (all of my best friends). High values on this measure thus mean many same-language peer friendships and lower values indicate few same-language peer friendships. We found a mean of 3.24 (SD=1.44) on same-language peer friendships for the whole sample (see table 7). For pupils from Dutch-only homes, the mean was 3.67 (SD=1.37) and for pupils that do not (only) speak Dutch at home, we found a mean of 3.03 (SD=1.42). These numbers suggest that pupils from Dutch-only homes have relatively more same-language friends compared to multilingual pupils, although the difference was not significant.

School level variables - At the school level, three variables were constructed: linguistic diversity of the pupil population, tolerant practices towards multilingualism and the average socioeconomic background of the schools' pupils.

Linguistic diversity was measured by using the Herfindahl index (Dronkers, 2010; Putnam, 2007) applied to linguistic composition by taking both group size of every linguistic group present and the diversity in linguistic groups into account. The groups were established using the language the children indicated to know best. Only the children that used a language other than Dutch at school were categorized in that particular linguistic group. Children that spoke only Dutch at school, even if they did use other languages at home, were classified in the Dutch language group. This operationalization mirrors the linguistic boundaries that are visible at school, not the linguistic background pupils might be able to hide in the school context, which might in that respect be less significant for friendship formation. The index was calculated using the formula: $-1 \times [(proportion\ linguistic\ group\ 1)^2 + (proportion\ linguistic\ group\ 2)^2 + \dots + (proportion\ linguistic\ group\ n)^2] + 1$. Values for this index ranged from 0 to 1, with a value of 0 indicating that only one home language was present at school, which could be Dutch or any other language. A value of 1 indicated that every pupil in the school used a different language at home. The average linguistic diversity in this study was 0.4 with a standard deviation of 0.21 (see Table 7).

Tolerant practices toward multilingualism were measured in teachers using a four-item scale. We introduced the four items of the scale by stating "every teacher has a proper way of teaching. These statements deal with what you would tolerate or not in the case you would teach pupils with another home language." Then the four items were given. They all started with "pupils are allowed to use another language than Dutch in order to", then four situations followed: "to explain the content to another pupil.", "in class.", "on the playground" and "during group work". Item correlation substitution was used for missing values (Huisman, 2000). We replaced missing values with the value of the item correlating most highly with the missing one. This reduced missing values from on average about 20 % in the original items to about 11% in the items that were used for scale construction. Confirmatory factor analysis showed that all items measure the same underlying concept and the scale's Cronbach's alpha was 0.86. We compared the reported tolerant practices by the teachers with the perceived tolerant practices by the pupils – measured by the same items, only reformulated from the point of view of the pupils - and found that both correlated strongly ($r = 0.676$, $p < 0.005$). This might indicate that no important social desirability bias existed in teachers for this measure. On

average, teachers scored 2.22 on a scale from 1 to 5 with a standard deviation of 1. Higher values on this scale indicated more tolerant practices. Tolerant practices toward multilingualism were thus rather rare. We used a measure for assessing the interrater-reliability, namely an intra-class correlation coefficient (ICC) based on a one-way ANOVA and calculated as $(\text{between mean square} - \text{within mean square}) / \text{between mean square}$, to assess if teachers' tolerant practices toward multilingualism were shared at the school level. The ICC was 0.91, indicating that teachers within schools resembled each other more than teachers from different schools (Glick, 1985; Shrout & Fleiss, 1979), which legitimized aggregation to the school level. We aggregated the measure by taking the mean and used that mean as a school level variable. The mean of this aggregated measure of tolerant practices towards multilingualism was 2.23 (SD=0.63) (see table 7).

To measure the mean SES of a school, we used the ISCO-coding system to construct an ISEI scale (Ganzeboom & Treiman, 2013) (see infra). Then we aggregated this to the school level by taking the mean of the SES scores of the fourth-graders in a school. The average of the schools' SES was 49 with a standard deviation of 13 (table 7).

Pupil level variables - At the pupil level, four characteristics were considered: the home language of the pupil, SES, ethnicity and gender.

The home language of a pupil was dummy coded, with a value of 1 if pupils spoke not (only) Dutch at home and pupils from a Dutch-only home as the reference category. In this sample, we found 1004 pupils (67.5 %) with a multilingual background and 483 pupils (32.5%) from Dutch-only homes (see table 7).

We used the ISCO-coding system to construct an ISEI scale to quantify the SES of pupils (Ganzeboom & Treiman, 2013). The occupation codes based on the parents' questionnaire were used, but when these were missing we used data from the pupils. This was the case for 37 % of the pupils. As displayed in table 7, the SES scores in the total sample ranged from 0 to 100, with a mean of 48.88 and a standard deviation of 22. For pupils from a Dutch-only home, we found an average SES of 59.12 (SD = 21), while for pupils who did not (only) speak Dutch at home the average SES was 43.95 (SD = 21).

We defined the ethnicity of a pupil by looking at the birthplace of the grandmothers, and if this was missing we looked at the parents' birthplace, as is generally done in Flemish and Dutch research (Jacobs, Swyngedouw, Hanquinet, & Vandezande, 2006). For this study we categorized pupils into six ethnic groups: Turkish (15.40%), Moroccan (12.90%), Dutch (2.42%), Eastern European (2.56%), Belgian (48.02%) – the reference

category – and other descent (18.70%). Pupils that lived in a Dutch-only home were mainly of Belgian (87.38%), Dutch (3.52%) or other descent (6.83%). Pupils who did not (only) speak Dutch at home were of Belgian descent (29.08%), other descent (24.4%), Turkish (22.61%), Moroccan (18.43%), Eastern European (3.59%) or Dutch descent (1.89%) (see table 7).

Table 7: Descriptive statistics for dependent and independent variables: frequencies (%), means and standard deviations for all pupils, the group of pupils from Dutch-only homes and the group of pupils that do not (only) speak Dutch at home

	Mean (SD), % for all pupils	Mean (SD), % for pupils that do not (only) speak Dutch at home	Mean (SD), % for Dutch-only home pupils
Pupil level			
Same-language friendships (range 1-5)	3.24 (1.44)	3.03 (1.42)	3.67 (1.37)
Ethnicity			
Moroccan	12.90%	18.43%	1.45%
Turkish	15.40%	22.61%	0.41%
Eastern European	2.56%	3.59%	0.41%
Dutch	2.42%	1.89%	3.52%
Belgian	48.02%	29.08%	87.38%
Other descent	18.70%	24.4%	6.83%
Gender (ref. cat. = boy)	50%	50%	49%
SES (range 14-89)	48.88 (22.33)	43.95 (21.25)	59.12 (21)
Home language (ref. cat. = only Dutch)	32.5%	-	-
School level			
Linguistic diversity (range 0-0.78)	0.42 (0.22)	0.42 (0.22)	0.42 (0.22)
Tolerant practices towards multilingualism (range 1.30-4.38)	2.23 (0.63)	2.23 (0.63)	2.23 (0.63)
Mean SES (range 28-76.25)	49.13 (12.90)	49.13 (12.90)	49.13 (12.90)

We included the pupils' gender, with the same number of girls and boys in this sample. For the two separate samples, both genders were also balanced.

2.3.3. Qualitative sample

The qualitative data were gathered during a focus group with 24 twelve-year-olds about language policy at school in December 2012. All pupils came from the same medium-sized school with an ethnically very mixed pupil population. That school was selected based on its prior experience in a project concerned with the usage of multilingualism in the classroom: the Home-Languages-In-Education project, conducted by the universities of Ghent and Leuven and the city council of Ghent. We chose it because we wanted to look at the hierarchical differences expressed by pupils in a school where those differences were rather egalitarian. Since this school participated in a workshop organized by the authors' own university, the pupils were easily accessible for the researchers and felt eager to participate. All 6th graders visited the university and participated in the focus groups.

The participating pupils were divided into two groups and took part in a workshop in which they discussed a language policy for their school. The interviewees were not divided randomly over the two groups -- the grouping matched their classroom grouping. The research design of the focus group was the same for both groups. Discussions followed after reading a hypothetical event that happened in the school context: pupils reacted to these hypothetical events and were challenged to find solutions in the form of clear rules that could be applied to a school context. In the results section, the pupils' names were replaced by pseudonyms.

2.3.4. Mixed-method research design

Three different analyses were executed. The entire group of pupils was analyzed before analyses were done separately on the samples of multilingual and pupils from Dutch-only homes. We started the quantitative analyses with an overall model for the whole sample, consisting of both exclusively Dutch-speaking and multilingual pupils, with same-language friendships as the dependent variable. Since pupils in the sample were nested in schools and we included variables at pupil and school levels, we used multilevel linear regression analysis in SPSS 21. Since the dependent variables are Likert-like, they are strictly speaking ordinal measures. We therefore ran the same models using multinomial regressions in MLwiN 2.32 (not shown). These analyses yielded the same results as the linear regressions. For the sake of interpretability, we decided to include the linear regression models in this article.

A random intercept was included, but no random slopes were part of the models. To start with, we estimated an unconditional model to determine the variance in same-language friendships situated at the school level. Then, to answer the first research question, we included the indicator of linguistic diversity (Model 1). Next, in order to resolve the second research question, we included the tolerant practices of teachers towards multilingualism at school in the model (Model 2). After that, we inserted the schools' socioeconomic context into the model (Model 3), to distinguish the effects of the socio-economic and the linguistic composition of a school. We then included the pupil variable of home language (Model 4), in order to see whether friendship patterns differ depending on the linguistic background of pupils. In order to exclude selection effects, we entered the individual characteristics of pupils that have been demonstrated to relate to in/out-group friendship patterns (Model 5). We turned to evidence about cross-ethnic friendships to select appropriate control variables, since interlinguistic friendships in education have not yet been studied in depth (for an exception see Aboud & Sankar, 2007). Gender, SES and ethnicity were controlled for since they have been demonstrated to relate to interethnic friendships (for gender see Fischer, 2008; McPherson et al., 2001; for SES see Dixon & Rosenbaum, 2004; Quillian & Campbell, 2003; for ethnicity see Joyner & Kao, 2000; Shrum et al., 1988). In Models 6 and 7, we estimated the cross-level interactions between home language and linguistic diversity, and between home language and tolerant practices towards multilingualism. Since pupils with differing home languages occupy different positions at school due to those home languages (dominant or non-dominant), their friendships would possibly be influenced differently by linguistic diversity or tolerant practices towards multilingualism. Monolingual pupils might experience tolerant practices towards multilingualism as a threat, paralleling group threat theory (Blalock, 1967); whereas for multilingual pupils, tolerant practices may mean that they feel more appreciated in the school context, which would then affect their friendship patterns in a different way. If at least one of these interaction terms turned out to be significant, we decided to split the sample and perform the same analyses separately for multilingual and Dutch-only pupils.

Following the quantitative analysis, we analyzed the data from the focus groups in order to get broader insight into how tolerant practices at school might influence the formation of cross- and same-language friendships. The data gathered during the focus groups were analyzed using the Grounded Theory perspective (Glaser & Strauss, 1967; Mortelmans, 2011). Although the data were gathered in only one period of time, the coding of the data was cyclical. The data were the starting point to arrive at the

formation of theories. We used the qualitative analysis to assess the shared beliefs of pupils about language at school, also called linguistic culture between pupils in schools (see Van Houtte, 2005 for the development of the notion of school culture). In this way, we aimed at better understanding the results of the quantitative analysis and framing the answers to the research questions since the qualitative analysis enabled us to get a clearer perspective on the atmosphere in which friendships between pupils are formed.

2.4. Results

2.4.1. Results of quantitative analysis

The unconditional model for the complete sample of pupils showed that 10.57% of the total variance in same-language friendships was between schools (variance component = 0.22, $p < 0.05$). Characteristics of the school are thus important for pupils to get involved in same-language friendships. When looking at the separate samples, we found a difference between pupils from multilingual homes and pupils from Dutch-only homes. For pupils from multilingual homes, 11.38% of the total variance in same-language friendships was between schools (variance component = 0.23, $p < 0.05$), while this was 17.26% for pupils from Dutch-only homes (variance component = 0.34, $p < 0.05$). This means that compared to pupils from multilingual homes, pupils from Dutch-only homes are much more dependent on their school context to get to know peers speaking different languages than themselves at home.

The first research question focused on the effects of a school's linguistic composition on the same-language friendships of pupils. In the model including all pupils, a school's linguistic diversity was negatively related to same-language friendships, until we controlled for mean SES of the school (Table 8, Model 3), indicating that SES context explained a part of the effect of linguistic diversity insofar as the two variables are strongly related ($r = -0.478$, $p < 0.01$). The analyses on the complete sample of pupils thus indicated that the linguistic composition of a school did not influence pupils' same-language friendships. When controlling for pupil level variables, the effect of linguistic diversity remained insignificant (table 8, models 4 and 5). The results for the full sample, did thus not support the first hypothesis. Model 5 explains 14% of the variance on the school level and 8% of the total variance in same-language friendships.

Table 8: Association between linguistic diversity, tolerant practices and number of same-language friends (N=1487)

	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	3.208***	3.203***	3.200***	3.203***	3.707***	3.828***	3.585***	3.834***
School level								
Linguistic diversity		-0.819**	-0.724*	-0.495	0.136	-0.002	-1.389**	-0.005
Tolerant practices			-0.119	-0.11	-0.142	-0.107	-0.121	-0.064
Mean SES school				0.008	0.006	0.001	0.002	0.0004
Pupil level								
Gender (reference category = boy)						-0.179*	-0.186**	-0.179*
Ethnicity (reference category = Belgian descent)								
Morocco					-0.147	-0.147	-0.167	-0.148
Turkey					-0.29*	-0.292*	-0.292*	-0.291*
Eastern Europe					-0.524*	-0.524*	-0.522*	-0.52*
Netherlands					-0.138	-0.138	-0.065	-0.138
Other descent					-0.611***	-0.611***	-0.616***	-0.61***
SES					0.002	0.002	0.002	0.002
Home language (ref. cat. = Dutch-only home)					-0.706***	-0.462***	-0.242	-0.469***
Cross-level interactions								
Tolerant practices x home language							2.018***	-0.054
Linguistic diversity x home language								
Variance components								
σ_{pupil}	1.86 (SE=0.07)	1.86 (SE=0.07)	1.86 (SE=0.07)	1.86 (SE=0.07)	1.78 (SE=0.07)	1.73 (SE=0.07)	1.71 (SE=0.06)	1.73 (SE=0.07)
σ_{school}	0.22 (SE=0.06)	0.19 (SE=0.05)	0.19 (SE=0.05)	0.17 (SE=0.05)	0.20 (SE=0.05)	0.19 (SE=0.05)	0.18 (SE=0.05)	0.18 (SE=0.05)

Dependent variable: number of same-language friends, $p < 0.001 = ***$, $p < 0.01 = **$, $p < 0.05 = *$, $p < 0.1 = \circ$.

In order to verify whether the effects of linguistic composition differed for multilingual and Dutch-only pupils, we included a cross-level interaction term. The cross-level interactions between home language and linguistic diversity at school was significant (table 8, Model 6): linguistic diversity brought pupils of Dutch-only homes to have less same-language friendships, while multilingual pupils had more same-language friendships in diverse schools. The finding that the effect of linguistic diversity differed for multilingual and pupils from Dutch-only homes compelled us to run the model again for both groups separately.

As could be expected, the two groups differed in the sensitivity of their friendship network to the schools' linguistic diversity. For multilingual pupils, linguistic diversity seems to encourage same-language friendships. We found a significant positive association between linguistic diversity and same-language peer friendships (Table 9, Model 1). For pupils from Dutch-only homes, we found that linguistic diversity had a negative impact on same-language friendships (Table 10, Model 1). The more linguistically diverse their school was, the less likely these pupils were to develop same-language friendships. This association remained significant throughout all the models, indicating that it was not caused by another variable included in the analyses. Our results thus indicate that for multilingual pupils, the first hypothesis needs to be rejected while for pupils of Dutch-only homes we did find support for the first hypothesis.

Table 9: Association between linguistic diversity, tolerant practices and number of same-language friends for pupils that do not (only) speak Dutch at home (N=1004)

	Model 0	Model 1	Model 2	Model 3	Model 4
Intercept	3.026***	3.005***	2.993***	2.999***	3.418***
School level					
Linguistic diversity		0.448°	0.632**	0.748**	0.564*
Tolerant practices			-0.188**	-0.173*	-0.125°
Mean SES school				0.005	-0.003
Pupil level					
Gender (reference category = boys)					-0.195*
Ethnicity (reference category = Belgian descent)					
Morocco					-0.177
Turkey					-0.273*
Eastern Europe					-0.654*
Netherlands					-0.386
Other descent					-0.689***
SES					0.006*
Variance components					
σ_{pupil}	1.79 (SE=0.08)	1.79 (SE=0.08)	1.78 (SE=0.08)	1.78 (SE=0.08)	1.72 (0.08)
σ_{school}	0.23 (SE=0.07)	0.23 (SE=0.06)	0.21 (SE=0.06)	0.21 (SE=0.06)	0.18 (0.05)

Dependent variable: number of same-language friends, $p < 0.001 = ***$, $p < 0.01 = **$, $p < 0.05 = *$, $p < 0.1 = °$

Table 10: Association between linguistic diversity, tolerant practices and number of same-language friends for pupils from Dutch-only home (N=483)

	Model 0	Model 1	Model 2	Model 3	Model 4
Intercept	3.675***	3.432***	3.439***	3.394***	3.545***
School level					
Linguistic diversity		-1.412***	-1.522***	-1.238**	-1.321**
Tolerant practices			0.199	0.132	0.156
Mean SES school				0.014	0.013°
Pupil level					
Gender (reference category = boys)					-0.189
Ethnicity (reference category = Belgian descent)					
Morocco					-0.388
Turkey					-1.178
Eastern Europe					-0.459
Netherlands					0.08
Other descent					-0.467°
SES					-0.002
Variance components					
σ_{pupil}	1.63 (SE=0.11)	1.63 (SE=0.11)	1.63 (SE=0.11)	1.63 (SE=0.11)	1.6 (SE=0.11)
σ_{school}	0.34 (SE=0.12)	0.25 (SE=0.10)	0.24 (SE=0.09)	0.21 (SE=0.09)	0.22 (SE=0.09)

Dependent variable: number of same-language friends, $p < 0.001 = ***$, $p < 0.01 = **$, $p < 0.05 = *$, $p < 0.1 = °$

The second research question focused on the importance of tolerating multilingualism for friendship patterns. In the model with all pupils included, tolerant practices towards multilingualism did not affect the number of same-language friendships (table 8). Tolerating multilingualism did not seem to affect friendship patterns of pupils.

For the multilingual pupils, however, tolerant practices proved significantly related to same-language friendships; in this step the effect of linguistic diversity also became borderline significant (Table 9, Model 2). This may be an indication of a suppression of the associations of linguistic diversity with peer friendships by tolerant practices towards multilingualism. Since linguistically diverse schools were more tolerant towards multilingualism, the positive effect of linguistic diversity for multilingual pupils did not show in Model 1. Being tolerant in school towards multilingualism thus prevented non-Dutch pupils from developing solely same-language friendships. For these pupils, the second hypothesis was supported and we needed to reject the third.

For pupils from Dutch-only homes, we found no effect of tolerant practices on same-language friendships in pupils from Dutch-only homes. It did not seem to matter whether the school tolerated multilingualism for their friendship patterns (Table 10, Model 2). For these pupils, the third hypothesis seemed the most appropriate one, while we rejected the second hypothesis.

The final model for pupils with a multilingual background explains 22% of the variance on the school level and 6% of the total variance in same-language friendships. For pupils from Dutch-only homes, the final model explains 35% of the variance on the school level and 8% of the total variance in same-language friendships.

2.4.2. Results of qualitative analysis

The quantitative results show that for multilingual pupils, the tolerant practices of teachers towards multilingualism influence their friendships. Changing the stance towards multilingualism thus changes their friendship patterns, but do the underlying status differences between languages also exist in the heads of the pupils? To solve the third research question – how do pupils express differences in status for the languages in their school? – We focus on the qualitative data. This helps us to understand the results of the quantitative analyses better since the qualitative analysis enabled us to understand how pupils experience the atmosphere in which friendships are formed.

A general trend seen in both focus groups was the very strong emphasis on the importance of Dutch. None of the pupils questioned the dominant place of Dutch in the classroom and a small minority even did not see a place for other languages on the playground. This opinion was present in both pupils from a monolingual and a multilingual home. These results were also found by Agirdag (2010) for secondary education. The monolingual ideologies of pupils were thus similar to those of teachers, as can be seen in the quotes by Justin and Ekram.

“And if you did not do that (speak Dutch) during the breaks, than yes, when you are grown-up than you can think yes, what do I get from school actually? What do I get from those stupid, um, stupid, I’ll just say, seven years that I was in school? What do I get from it? You can also think that eh.”

Justin, boy, 12 years old, speaks Dutch and a little English at home

“But you also have to try to speak a little bit of Dutch because otherwise your Dutch will never be that good.”

Ekram, girl, 11 years old, speaks Dutch and Turkish at home

This emphasis on the importance of Dutch might have contributed to the insignificant effect of tolerant practices towards multilingualism on the same-language friendships of pupils from Dutch-only homes as found in the quantitative analysis. The position of Dutch might be so strong in schools that pupils from Dutch-only homes are not attracted by friendships with multilingual pupils, since these pupils occupy a lower status at school than they do.

Pupils supported the idea of using home languages in the playground, but this did not contradict their strong belief that enforcing the knowledge of Dutch is an important purpose of school. They were in favor of allowing other languages on the playground since the playground is the place for breaks in the learning process and because the breaks are only a fraction of the time spend in the classroom. Since pupils have an emotional attachment to their home language, they advocate the tolerance of their home language during breaks and at home, while having a more rational relationship with Dutch, as the language through which academic and professional success can be achieved. They therefore support the exclusive usage of Dutch during studying time. These findings are reflected in the quote by Yousra.

“In the classroom, you have to speak Dutch. But outside, well, in the playground, than you should, well, the playground is a break, then I am talking with my friends and then you should not, you should not start talking in Dutch, then you can speak other languages. So, in the classroom, you have to speak Dutch and in the playground you have to choose.”

Yousra, girl, 11 years old, speaks Arabic and Dutch at home.

Beside, pupils saw mostly negative consequences of the use of home languages on the playground. The usage of languages other than Dutch can lead to the exclusion of pupils who do not speak a certain language and it offers pupils the opportunity to slander others without their knowledge. Amina, the girl that expressed the next quote, is one of the pupils that feared such practices.

“Because um, because you can if you just do not speak your own home language and then and then you can also really tell something about another person in your own home language, in your own language while, yeah, in your own language, like I actually hate you and stuff, yes. But yes, the other then does not understand actually, so yes, that is it.”

Amina, girl, 12 years old, speaks Moroccan and Dutch at home

A practice broadly used to tackle these disadvantages is to switch to Dutch from the moment a pupil who does not understand a group conversation enters a group. All pupils but one supported this practice.

It should be kept in mind that the data used in the qualitative analysis come from pupils of one school. Still, the school that we selected was rather tolerant towards multilingualism, so we expect the dominance of Dutch to be even stronger in less tolerant schools.

2.5. Discussion and conclusion

Migration and globalization have made societies increasingly diverse (Vertovec, 2007). This tendency is felt in schools as well. Many languages are spoken at school. Still, the composition of pupil populations in schools does not fully determine the diversity in friendship networks between pupils (e.g. Moody, 2001). These observations can be explained by social homophily (e.g. McPherson et al., 2001).

In this article, we focused on language as a motive for social homophily. We questioned what the effect was of a linguistically diverse school population on patterns of same-language friendships, looking at both monolingual Dutch and multilingual pupils. Next, we considered the influence of tolerating multilingualism in the school context on friendship patterns. Considering the effects of linguistic diversity and tolerant practices towards multilingualism brought us thus to conclude that different stories should be told for pupils with a monolingual (Dutch) background and pupils with a multilingual background.

For the pupils from Dutch-only homes, we found support for Blau's heterogeneity theory (Blau, 1977) and our first hypothesis: increasing levels of heterogeneity bring about lower levels of same-language friendships. Tolerant practices towards multilingualism have no effect on same-language friendship patterns for pupils from Dutch-only homes, indicating that the data for pupils from Dutch-only homes do not support the second and third hypothesis of this study. Several possible reasons exist to explain this. From our qualitative analysis of focus groups, we learned that the dominance of Dutch is still very strong, even in schools that are rather tolerant towards multilingualism – such as the school that participated in the qualitative analysis. Much might depend on the intensity and depth of the tolerant practices at school. Allowing children to use their home language at the playground and during less demanding tasks in the classroom does not necessarily raise the status of those languages to the same extent as allowing children to exploit their home language during core business learning tasks (see also Sierens & Van Avermaet, 2014). Restricting multilingualism in the school context to situations that are perceived as only remotely connected to learning does not recognize multilingualism as a valuable tool for learning (also described by Pulinx et al., 2014). Another reason, found in the literature and also present in our data, might be that linguistic background is strongly linked to ethnicity and SES. The correlations between these three parameters is called 'consolidation' by Blau (1977). It might be the case that friendship patterns are influenced strongly by ethnicity and SES and therefore also by the home languages that pupils speak (see Van Houtte & Stevens, 2009 for an illustration of the effects of consolidation between ethnicity and SES). The consolidation theory states that the higher the correlations are between different characteristics, the fewer intergroup associations will exist (Blau, 1977; Skvoretz, 1983). It could be that ethnicity and SES have a stronger preventive effect on mixed friendships than the encouraging effect of tolerant practices is able to counter. It might also be that due to this consolidation, pupils from different linguistic backgrounds do not encounter each other

easily when out of school (as was also indicated by Aboud & Sankar, 2007). Another reason why tolerant practices possibly do not encourage cross-language friendships is the loyal member effect (Aboud & Sankar, 2007; Castelli, Sherman, & De Amicis, 2007). Other pupils from Dutch-only homes might discourage cross-language friendships strongly, preventing a negative effect of tolerance on same-language friendships. It might also be that pupils from Dutch-only homes are purposely excluded from friendly relations by multilingual pupils, as was suggested by some pupils in the focus groups. A possible exclusion through language may contribute to the insignificant effect of tolerant practices towards multilingualism: Tolerating multilingual pupils' use of their home language enables them to actively exclude Dutch-only pupils, which in turn discourages those pupils from socializing with the group of multilingual pupils. In our opinion, this does not seem to be the case, as tolerant practices towards multilingualism do seem to move multilingual pupils into friendships with each other, while these tolerant practices also have the power to exclude multilingual children that speak another language.

We found a different story for pupils with a multilingual background. Peter Blau's heterogeneity theory (Blau, 1977) did not fit the data here and for these pupils the first hypothesis had to be rejected. A positive effect of linguistic heterogeneity was found for the group of multilingual pupils. This indicates that, when confronted with a more mixed school population, multilingual pupils still make sure they develop sufficient friendships with peers that speak the same language at home (see also Demanet & Van Praag, 2015). For multilingual pupils, a more diverse school population might indicate the presence of more speakers of their home language, thus resulting in a higher possibility of developing same-language friendships. When tolerant practices come into the picture, the story changes. Tolerant practices towards multilingualism diminished the chances of same-language friendships for multilingual pupils, which gives support for the second hypothesis in favor of the third hypothesis. The borderline significant effect of linguistic diversity is suppressed by the effect of tolerant practices towards multilingualism. It could be that pupils with a multilingual background search for same-language peers as soon as they get the chance, but according to the present analysis, this does not happen due to tolerant practices towards multilingualism. The extent to which tolerant practices towards multilingualism contribute to the decrease of same-language friendships indicates that – next to other parameters like SES and ethnicity – language is a salient parameter for social homophily (Blau, 1977; McPherson et al., 2001). Tolerance towards multilingualism did change patterns of inbreeding homophily in terms of language. Tolerant practices towards multilingualism might encourage multilingual

pupils to show positive interest in each other and each other's languages. For pupils from a Dutch-only home, tolerant practices towards multilingualism did not affect friendship patterns. As such, this study shows that creating the preconditions for positive effects of intergroup contact does have a positive effect on the prevalence of cross-language friendships between multilingual pupils. This finding was also supported by the qualitative results: since pupils see Dutch as the most important language by far, superficial tolerant practices towards multilingualism are not able to raise the status of home languages enough to bring pupils from Dutch-only homes and multilingual pupils closer together. Tolerance towards multilingualism does connect pupils who speak non-dominant languages more strongly. The process seen in pupils from Dutch-only homes is in line with Bourdieu's concept of elite closure (Bourdieu, 1992). Pupils from Dutch-only homes might unconsciously be excluding multilingual pupils from their networks in order to maintain their dominant position.

Welcoming multilingualism does not seem to encourage segregation of different groups at school, as these results suggest that increasing levels of linguistic diversity (for pupils from Dutch-only homes) and tolerant practices towards multilingualism (for multilingual pupils) tend to integrate school populations. Some teachers hesitate to tolerate the use of other languages than Dutch in school, for instance on the playground, as they fear that this will lead to the formation of cliques and the separation of certain language groups (Ramaut et al., 2013). But based on these results, we can say that tolerating the usage of minority languages has no effect (for Dutch-only pupils), and the desired integrative effect (for multilingual pupils).

In this respect, future research should continue monitoring friendship patterns in cases that go beyond mere tolerating, i.e. exploiting and rewarding multilingualism. Since we found rather low levels of tolerant practices in the schools in the sample used in this study, it is important to check whether advanced levels of tolerant practices do not turn the tide towards more avoidance or hostility between linguistic groups. As was suggested in the work of Janmaat (2011) for interethnic relations, it could be that dominant groups might feel threatened with more equal group statuses and therefore start avoiding mixed friendships. Still, this does not seem to be happening in the near future since Dutch maintains its dominant status in schools and multilingual pupils remain disadvantaged in terms of SES compared to pupils from Dutch-only homes.

In this study, we applied insights about social homophily on same-language friendship patterns. The theories we applied were mainly based on ethnic group relations, but

proved suitable for a linguistic analysis as well. Although the results were very different for pupils from Dutch-only homes and multilingual pupils, this research shows that linguistic diversity and tolerant practices towards multilingualism might be a first step towards encouraging interlinguistic friendships.

2.6. Notes

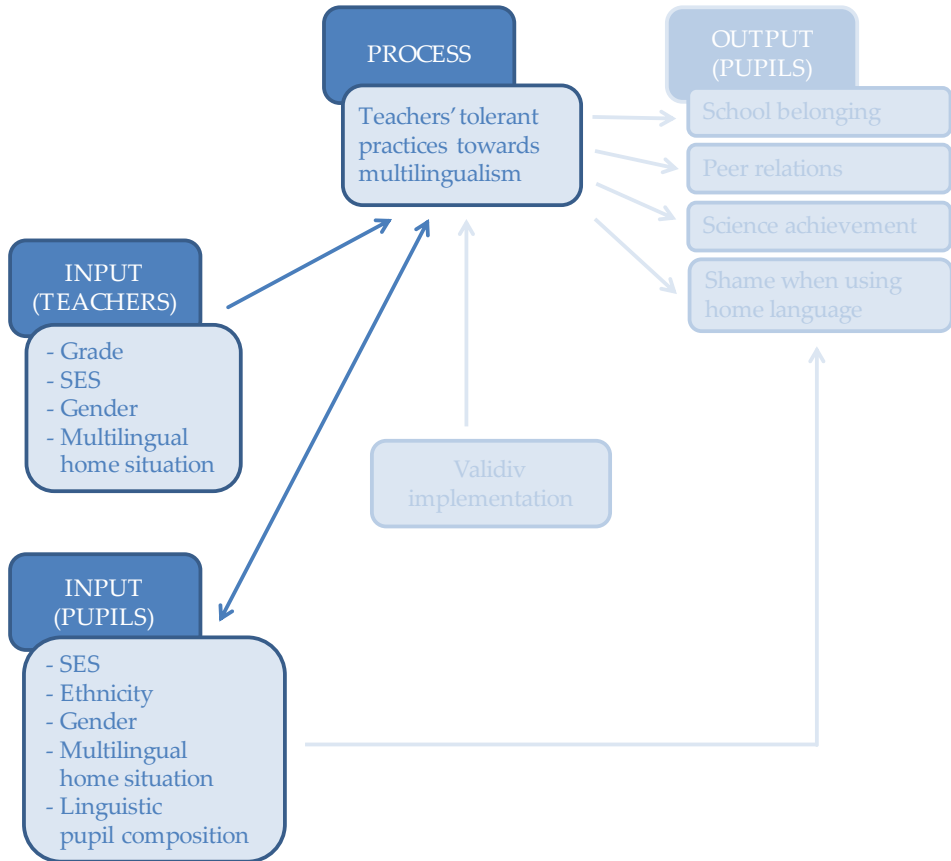
Since the dependent variables are Likert-like, they are strictly speaking ordinal measures. We therefore ran the same models using multinomial regressions in MLwiN 2.32 (not shown). These analyses yielded the same results as the linear regressions. For the sake of interpretability, we decided to include the linear regression models in this article.

3. How school teams perceive and handle multilingualism: The impact of a school's pupil composition

This chapter is under review for Teaching and Teacher Education.

ABSTRACT - Nowadays, pupils bring a wide variety of languages to school. This study focuses on how school teams perceive the linguistic composition of pupil populations and how that linguistic composition influences their teaching practices regarding multilingualism. The mixed-method design combines a multilevel regression with 1255 teachers from 67 schools with focus group discussions amongst teachers and headmasters in ten schools of the larger sample. Our findings indicate that school teams indeed distinguish between schools with different pupil populations. Differences in the linguistic composition of the pupil population bring them to tolerate multilingualism to various extents. Teachers feel encouraged to do so by both negative and positive motivations.

Figure 7: Aspects and relations in the operational model under focus in study 3



3.1. Introduction

Societies have become increasingly diverse due to migration and globalization (Vertovec, 2007). As in other domains of society, multilingualism is present in the educational domain, with schools accommodating pupils with various linguistic backgrounds. According to the European Commission (2008) this rise in linguistic diversity should be approached in a positive manner, as a resource that should be exploited:

There are also untapped linguistic resources in our society: different mother tongues and other languages spoken at home and in local and neighbouring environments should be valued more highly. For instance, children with different mother tongues – whether from the EU or a third country – present schools with the challenge of teaching the language of instruction as a second language (...), but they can also motivate their classmates to learn different languages and open up to other cultures.

(COM 2008/566: 4)

The presence of children with different mother tongues in schools is considered both a challenge for teaching and an opportunity for language learning and openness towards other cultures. Despite the European Commission's objective to value all languages, not only as a scaffold for linguistic and cultural learning, but also as a tool to 'deepen and strengthen pedagogies, skills, and knowledge itself' (COM 2008/423:3), educational research shows that linguistic diversity is often negatively perceived and considered to be an obstacle to learning and the functioning of schools (Blackledge & Creese, 2010; Hélot, 2012).

Analyses of public and teacher discourse reveal that languages other than the language of instruction are believed to be impediments to educational success and integration into society (e.g. Dooly, 2005, 2007; Gándara & Hopkins, 2010). This perception is particularly strong for languages that are spoken by low-status ethno-linguistic minorities. The pupils belonging to these groups often get submersed in the language of instruction in so-called 'sink-or-swim' programmes, which according to Skutnabb-Kangas (2009) remain the most common way of educating indigenous and minority children. Schools have difficulty in adapting to the growing linguistic heterogeneity of their pupil populations, often holding on to a restrictive, monolingual policy that prevents multilingual pupils from using their full linguistic repertoire (Gogolin, 2002). According to Gogolin a 'monolingual habitus' governs the 'language-directed perceptions, attitudes and activities of the teachers' (1997, p. 41). Hélot (2012, p. 214) talks about 'education systems built on the ideology of linguistic uniformity'. The monolingual orientation in education stands in contrast to educational research advocating the use of home languages in the classroom as didactic capital to improve educational success for children from diverse linguistic backgrounds (Cummins, 2001; García, 2009; Sierens & Van Avermaet, 2014).

It is clear that the European Commission's objective to approach and actually use linguistic diversity in a positive manner has not been achieved yet: Linguistic diversity often remains to be perceived as a challenge, or even a problem, for teaching. This is also the case for schools in Flanders, the setting of our study. Flemish educational research findings on language policies and tolerant practices towards multilingualism (e.g. Agirdag, 2010; Clycq et al. 2014; Pulinx et al., 2016) fit in with international results that reveal a tendency for schools to adhere to monolingual policies. Flanders, however, makes an interesting case because Flemish schools receive a lot of autonomy in developing their own policies and strategies to meet the minimal requirements set by the Ministry of Education (Van Peteghem, 1998). Schools have to meet the standards, but they are free to decide on how to do so. Consequently, schools are also free to decide on how to address the linguistic diversity of their pupils. Despite the general tendency to uphold a monolingual policy, there are differences between schools, which tolerate and use languages other than the language of instruction to varying degrees (Van Der Wildt et al. 2013, Pulinx et al. 2016). These differences might be related to differences in the composition of schools' pupil populations, ranging from schools with a vast majority of Dutch-speaking children (Majority dominant schools), over linguistically diverse schools (Mixed schools), to schools accommodating almost exclusively children sharing the same non-Dutch home language (Minority dominant schools).

This study examines the relationship between the linguistic composition of schools and the ways school teams deal with multilingualism. Through relating compositional school features, that is linguistic composition of the pupil population, to teacher outcomes, namely the way teachers deal with multilingualism, we address a gap in school effects research which – as far as we know - lacks 'systematic, integrated research into the effects of structural and compositional school features on teachers' outcomes' (Van Houtte 2011, p.76). Since former research highlights the influence of student ethnicity on teachers' perceptions and judgements of their pupils, and hence the ways they interact with them (Gillborn, 1990; Murray & Murray, 2004; Stevens, 2005; Pulinx et al., 2016), we expect the linguistic composition of a schools' pupil population and the ways in which school teams say they deal with multilingualism to be connected. This paper aims to investigate this relationship in detail.

3.2. Theoretical background

3.2.1. Teachers' tolerance towards multilingualism

Teachers often wonder how to handle the linguistic diversity pupils bring to school. They generally feel unprepared to teach multilingual pupils (Agirdag, 2009; Coleman, 2010; Johnson, 2012; author, 2014). Therefore, they rely upon common-sense beliefs about multilingualism, namely that the best way to learn a language is through submersion in that language (Cummins, 2008; author, 2014). This leaves no space for multilingual pupils' languages and leads to intolerance towards all linguistic diversity in classrooms (Gogolin, 2002; McLaughlin, 1992).

Sociolinguistic research, however, has shown how multilingual children use their linguistic repertoires in a natural, integrated way (e.g. Jorgensen, 2005). Although they might be studying in monolingual contexts, this does not necessarily mean that they think, and thus learn, monolingually (Busch, 2010). These insights into how multilingualism works, have brought scholars like García (2009) and Cummins (2001) to theorize about integrating pupils' multilingual realities in education, using them as didactic capital in order to enhance both the pupils' wellbeing and achievement.

Pupils may feel uncomfortable or demotivated when their languages, which form part of their identity, are pointed out as causes of school failure (Cummins, 2001). Multilingual pupils are often told to concentrate on the dominant language, while their home languages are portrayed as barriers for school success (Agirdag, 2009; Van den Branden & Verhelst, 2007). In this discourse, emphasis is laid on pupils' weaknesses. This results in pupils' impressions that teachers do not believe in them and in lower wellbeing for multilingual pupils. In schools where teachers take a more tolerant stance towards multilingualism, pupils have a stronger sense of school belonging (author, 2013) and more self-confidence than in other schools (Ramaut et al., 2013).

A more welcoming stance towards multilingualism might also benefit pupils' academic achievement since it might fit the learning process of multilingual pupils better (Cummins, 2008; García, 2013; Jorgensen, 2005). The integrated use of their linguistic repertoires is more natural for multilingual pupils (e.g. Jorgensen, 2005) and might thus result in stronger learning.

3.2.2. Differences in tolerance between teachers

Teachers differ in the extent to which they tolerate or repress multilingualism. Both individual teachers' experiences and schools characteristics, might influence the way teachers perceive and handle multilingualism in their classrooms and on the playgrounds.

Former research has suggested several predictive individual teacher characteristics for beliefs and perceptions towards multilingualism, and hence tolerant practices: gender, teacher category, SES, teaching experience and the experience of living in a multilingual home. Female teachers tend to show more positive attitudes towards multilingualism than male teachers (Pulinx et al., 2016; Youngs & Youngs, 2001). The kind of educational situation teachers teach in can also influence teachers tolerant practices towards multilingualism. The Flemish Home-Languages-in-Education-Project (Ramaut et al., 2013), for instance, found that kindergarten teachers tolerated the usage of home languages more than primary school teachers did. A high socio-economic status in teachers was found to predict more positive language attitudes as compared to teachers of lower socio-economic status (Byrnes et al., 1997). As research demonstrated that more experienced teachers exhibit less positive attitudes towards minority pupils than less experienced teachers (e.g. see Agirdag et al., 2012 for attitudes towards Muslim pupils), similar processes might be at play when tolerance towards multilingualism is concerned. A study by Youngs and Youngs (2001) showed that teachers who had taught or lived outside the US had more positive attitudes towards multilingual students.

With regards to multilingualism in education, the focus on school characteristics might be highly relevant. Previous research on multilingualism in education often has a narrow scope limited to the level of individual teachers or a few schools. However, teachers working as colleagues often share practices, perceptions and beliefs adapted to the school context in which they function (Hargreaves, 1992; Fang, 1996; Van Houtte, 2011). Therefore, school characteristics should also be taken into account when analysing how school team members perceive and deal with multilingualism in their teaching practices.

3.2.3. A school's linguistic composition and teachers' tolerance towards multilingualism

A school feature that has been established as vital for various outcomes in teachers is the schools' pupil populations (e.g. Thrupp 1999), which can vary according to age, gender, SES, ethnicity, culture, language, etc. This school feature is considered crucial because of its influence on various teacher beliefs, attitudes, perceptions and practices (e.g. Agirdag et al., 2013). Since the link between a linguistic composition of a pupil population and teacher outcomes has not thoroughly looked into yet, we draw on research about cultural and ethnic diversity in this literature overview. Previous research on the relationship between different ethnic and cultural configurations in pupil populations on the one hand and teacher outcomes such as beliefs, attitudes and practices on the other hand show disparate findings.

Some studies considered the link between a school's ethnic composition and teachers' language beliefs: Agirdag et al. (2013) found that teaching staff working in schools with a high proportion of ethnic minority and low-SES pupils tend to problematize the linguistic diversity that is present in their classrooms. Pulinx et al. (2016) detected significant differences in teacher monolingual beliefs which are related to the variations in ethnic composition of the schools' pupil populations. Teachers in schools with a balanced ethnic composition (40 to 60 % ethnic minority students) have the highest level of monolingual beliefs: they do not want to make use of different languages in their teaching practices. In schools with almost no ethnic minority pupils and schools with almost exclusively ethnic minority pupils, teachers express less monolingual beliefs.

Further, studies show a positive relationship between teachers' exposure to cultural and ethnic diversity and their attitudes towards cultural diversity at school. Pohan et al. (2009), for instance, claim that preservice teachers working in urban schools mostly serving low-income students of color became more positive towards diversity and more open towards culturally responsive policies and practices at school. Youngs and Youngs (2001) found that as teachers work with culturally diverse pupil populations, their familiarity and contact with them increased and teachers' attitudes towards multilingual pupils became more positive.

The contradictory results of previous research make it difficult to draw conclusions about whether ethnic and cultural diversity in schools increases or decreases the use of culturally responsive teaching practices. Some studies find that a higher proportion of minority pupils brings along negative beliefs about linguistic diversity (Agirdag et al.,

2013), another study shows that teachers have the strongest monolingual beliefs in balanced schools (Pulinx et al., 2016) and others even find that the exposure to diversity leads to more positive attitudes towards diversity (Pohan et al., 2009).

3.2.4. Research gap and questions

Research on the relationship between a school's linguistic composition and teachers' perceptions and practices concerning multilingualism is relatively rare, however relevant for various reasons. First, through relating compositional school features, i.e. linguistic composition of the pupil population, to teacher outcomes, i.e. the way teachers perceive and deal with multilingualism, a gap in school effects research which primarily concentrates on the relationship between school features and pupil outcomes, is addressed (e.g. Dumay & Dupriez, 2008; Van Houtte, 2011). Second, by looking into the linguistic composition of pupil populations, it would complement and expand on previous research which usually focusses on SES (e.g. Agirdag et al., 2013; Coleman et al., 1966; Jencks, 1972), ethnic (e.g. Murray & Murray, 2004; Pulinx et al., 2016) or cultural (e.g. Youngs & Youngs, 2001) diversity in pupil populations. Third, a lot of research has been conducted on the negative perceptions of linguistic diversity in education, which is often disregarded as didactic capital and hence 'silenced' in schools (Skutnabb-Kangas, 2009; Van den Branden & Verhelst, 2011; Pulinx et al., 2016). Most of these studies take an exclusively qualitative approach to reveal impediments to the use of different languages in schools. Within the extensive literature on multilingualism and linguistic diversity in education, comparatively little research has focused on the reasons why teachers and school teams do tolerate multilingualism. The instances in which teachers do tolerate multilingualism could, however, greatly contribute to our understanding of this topic.

The literature review brought us to formulate the following research goal: What is the impact of the linguistic school composition on the teachers' perceptions of multilingualism at their school? This research goal will be approached in a qualitative and quantitative manner, guided by two research questions. The first research question that will be addressed in this article is: How do teachers perceive linguistic diversity in pupil populations? The second research question will narrow these general perceptions down to the teacher's own school context and is twofold: a) How does the linguistic composition of the pupil population influence teachers' tolerant practices towards

multilingualism? b) How do teachers motivate their behaviour towards linguistic diversity in their own school context?

3.3. Study Setting

In Flanders, there is a long history of and a lot of advocates for a Dutch-only language ideology (Van Velthoven, 2011; Wils, 2009). When Belgium was founded in 1830, French was the official language used for administration and education (Wils, 2009). After a long period of struggle for the Flemish cause, the Dutch language has gained a strong position as official language in Flanders. However, a certain nervousness about the presence of other languages persists (author, 2008). The Dutch-only language ideology still has consequences for minority populations and incoming migrants (Blommaert & Verschueren, 1991; author, 2009), also in the educational context. Monolingual beliefs are still strongly represented in Flemish teachers. For instance, a vast majority of Flemish secondary school teachers (77.3%) believe that non-Dutch speaking pupils should not be allowed to speak their home language at school (Pulinx et al., 2016).

Due to migration flows in Flanders' history and present, the region has a diverse linguistic landscape, with 18% of the population being of foreign background (Non-profit data, 2015). More than 25% of the children born in 2014, are spoken to in another language than Dutch by their mothers. Since this proportion is growing over the years (Kind & Gezin, 2014), the proportion of primary school pupils who speak a language other than Dutch at home, will also continue to increase. It is unknown what languages are spoken by how many inhabitants in Flanders (Van Velthoven, 2011; Wils, 2009), although an informed guess can be made from the ethnic background of the inhabitants. The largest groups registered as foreigners living in Flanders are Dutch, Moroccan, Italian, Turkish and French (in this order, Brussels excluded, data from 2006) (Statbel, 2012). Data from 2000 show that Dutch is the sole home language in only 18% of the homes of pupils in the Dutch-speaking schools in Brussels (Verlot et al., 2003). Children attending these Brussels schools often speak one of these languages at home: French, Arabic, English, Turkish, Spanish and Italian.

3.4. Methodology

This research fits within the type of partially mixed concurrent equal status design (Leech & Onwuegbuzie, 2009), combining both quantitative and qualitative methodology. The quantitative data were mainly used in order to give a broad overview of the relationships between pupil populations and teachers' tolerant practices towards multilingualism in Flemish schools. In these analyses we distinguished between factors on teacher and school level and compared the effects on both levels. The qualitative data rendered a more nuanced picture of how school teams conceptualize linguistic diversity, charting discussions about multilingualism in real-life school settings. As such, qualitative and quantitative research added to a broader and deeper insight in the topics of the linguistic composition of pupil populations and teaching practices concerning multilingualism.

We started out by analyzing the audio-recordings of ten focus group discussions, exploring how school team members perceive linguistic diversity in pupil populations (research question 1). Next, we deepened our understanding of this issue by relating it to the ways school staff deals with multilingualism. We looked at this relationship in the large quantitative dataset as to find general patterns. We further refined these findings by looking into the qualitative data (research question 2).

3.4.1. Quantitative part

Sample - The quantitative data for this study originated from a survey conducted in 2012 in 67 primary schools in Flanders. The data were gathered between October and December 2012 as part of the Validiv-project (censured for reviewing process). We conducted multistage sampling, resulting in a sample that focuses on Dutch-medium schools in regions with a considerable proportion of ethnic minorities. First, we selected three Flemish regions with linguistically diverse populations (the mining region in Limburg and the cities of Ghent and Brussels) and, second, schools within these regions. Official data on schools allowed us to distinguish between schools with different linguistic compositions within these regions, since the number of children that used another language than Dutch at home was registered for every school. Based on official data of the Ministry of Education, we created three categories in this respect: schools with a low proportion of children from homes where another language than Dutch was spoken (< 10%), schools with a considerable proportion of children from homes where

another language was spoken (> 10% and < 50%) and schools with a large proportion of children from homes where another language was spoken (> 50%). Schools within the regions were selected, including sufficient schools of each type in each region. Every time a school refused to participate in the study, a school from the same region and of the same linguistic composition category was randomly selected. Since schools are often asked to participate in research, the response rate was rather low (31% of the initial sample agreed to participate) but we prevented a biased sample by the procedure of using subsamples of schools with a certain linguistic composition. We requested all teachers in the final 67 schools in our sample to complete a paper-pencil-survey. Of the teachers, 75.4% - or 1255 teachers - participated.

Measures: Dependent variable - Tolerant practices toward multilingualism were measured in teachers using a four-item scale. We introduced the four items of the scale by stating "Every teacher has a personal way of teaching. These statements dealt with what you would tolerate if you were teaching pupils with another home language than Dutch." Then the four items were given, starting with "Pupils are allowed to use another language than Dutch..." and followed by four situations: "in order to explain the content to another pupil.", "in class.", "on the playground" and "during group work". Item correlation substitution was used for missing values (Huisman, 2000). We replaced missing values in an item by the value of the item correlating most highly with that item. This reduced missing values from about 20% in the original data to about 11% in the data that were used for scale construction. Confirmatory factor analysis showed that all items measure the same underlying concept and the scale's Cronbach's alpha was 0.86. We compared the reported tolerant practices by the teachers with the perceived tolerant practices by the pupils - measured by the same items in 1761 4th-graders, only reformulated from the point of view of the pupils - and found that both correlated strongly ($r = 0.652$, $p < 0.01$). This might have been an indication that there is no important social desirability bias in teachers reporting their tolerant practices towards multilingualism. Since the reporting of tolerant practices seemed to be realistic, we choose to name the scale 'tolerant practices towards multilingualism'. On average, teachers scored 2.21 on the tolerance scale ($SD=1.01$) which ranged from 1 (not tolerant) to 5 (very tolerant). Due to the high frequencies of scores of low tolerance and the rare instances of high tolerance, the variable had a very skewed distribution.

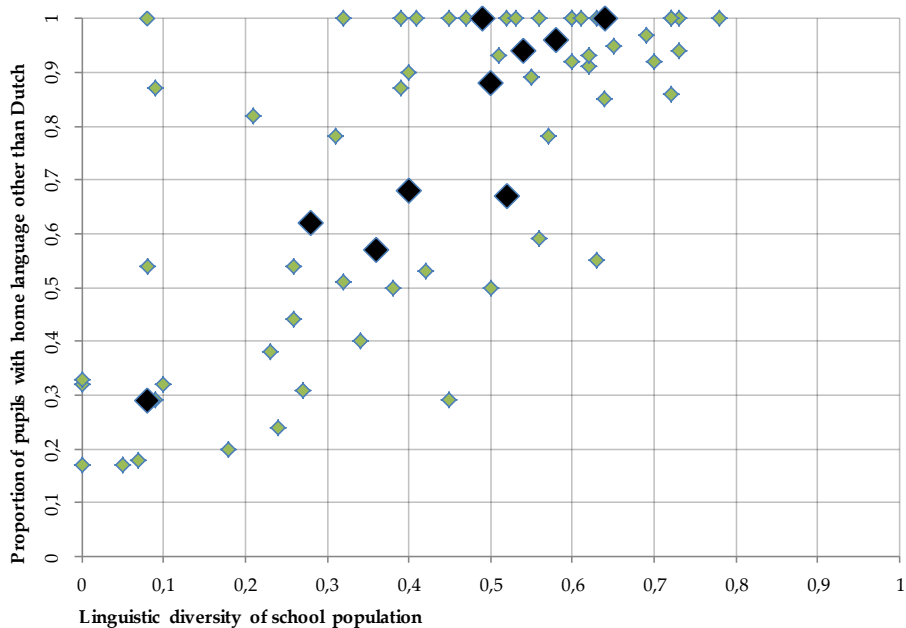
Measures: School level variables - At school level, two variables were included in the analyses: linguistic composition of the school's pupil population and the region of each school.

Schools were categorized into three groups depending on the linguistic composition of their pupil population. Therefore, two measures were used. The first measure concerned the linguistic diversity, which was measured by the Herfindahl index (Dronkers, 2010; Putnam, 2007). When applied to linguistic composition, it took both group size of every linguistic group present and the diversity in linguistic groups into account. The index was calculated using this formula: $-1 \times [(proportion\ linguistic\ group\ 1)^2 + (proportion\ linguistic\ group\ 2)^2 + \dots + (proportion\ linguistic\ group\ n)^2] + 1$. Values for this index ranged from 0 to 1, with a value of 0 indicating that only one home language is present at school; this could be Dutch or any other language. A value of 1 indicated that every pupil in the school used a different language at home. The average linguistic diversity in this study was 0.4 with a standard deviation of 0.21. The second measure that was used in order to create the categories of linguistic composition is the proportion of pupils in a school that did not (only) speak Dutch at home.

Schools were categorized into three groups: The first group scored over 0.5 on the measure of linguistic diversity and over 0.5 on the measure of proportion of pupils that do not (only) speak Dutch at home. This group was labeled mixed school, since the high proportion of multilingual pupils is very diverse as well. The mixed schools were defined as the reference category and concerns 30 schools or 44.6% of all schools in the data set. The second group scored 0.5 or lower on the measure of linguistic diversity and over 0.5 on the measure of proportion of pupils that do not (only) speak Dutch at home. This group was labeled Minority dominant school, since the high proportion of multilingual pupils mostly spoke the same language at home, thus forming a dominant group at school that constitutes a minority in the broader society. In this category 20 schools (30% of all schools) could be found. The third group scored 0.5 or lower on both measures and is labeled Majority dominant school. In this school a smaller proportion of multilingual pupils was present, and pupils from a Dutch-only home were strongly represented. Although we call this category Majority dominant schools, it needs to be noted that in these schools too multilingualism was present with at least 17% of the pupils (also) speaking another language than Dutch at home. In the dataset, 17 schools (25.4% of the data set) were labeled as Majority dominant schools. In theory, there could also be a fourth group with high scores on linguistic diversity and a small proportion of multilingual pupils but in our dataset this category was empty. Figure 8 illustrates the overall tendency that schools that were very heterogeneous had a high concentration of pupils that do not (only) speak Dutch at home and vice versa. Schools with a very high percentage of pupils who all speak the same foreign language at home were rather rare.

Schools with a high percentage of multilingual pupils often had a linguistically heterogeneous pupil population.

Figure 8: Distribution of schools by linguistic composition (schools in qualitative sample in black)



Schools were selected in three regions. In Brussels, the reference category, 24 schools, (35.8% of the sample), were selected. In Ghent, 22 schools (32.9% of the sample) were situated and 21 schools (31.3% of the sample) were schools located in Limburg.

Measures: Teacher level variables - Although this study did not focus on individual teacher characteristics, it was important to control for several teacher characteristics, because they might influence the way teachers perceive and act towards multilingualism in schools. These control variables are elaborated on in this section. Considerably more women than men choose the profession of teacher: 86% of our teacher sample consisted of women. On average, teachers had 14.82 years of experience in teaching (SD=10.29). The sample consisted of different teacher categories: 45% primary education teachers, 28% kindergarten teachers, 15% 'special needs' teachers (teachers who support children

who have difficulties in their learning process) and 12% of other kinds of teachers (such as teachers of sports and religion). The reference category were the primary school teachers. Some teachers indicated that they fulfilled different roles at school. In these cases we chose to categorize the teachers as ‘special needs’ or other teachers, since former research showed considerable differences between teachers occupying different roles at school (Ramaut et al., 2013). We expect this experience as ‘special needs’ or other teachers to have the strongest impact on their identity as teachers. Teachers’ socio-economic status was measured using the ISCO-coding system to construct an ISEI scale (Ganzeboom & Treiman, 2013). Teachers’ socio-economic status was on average 51 (SD=20). Almost 17% of all teachers had experience with multilingualism at home. They either grew up in a multilingual home or they lived in a multilingual home at the moment of the survey.

Table 11: Descriptive statistics for dependent and independent variables: frequencies (%), means and standard deviations

Variables	Mean (SD), %	N
Teacher level		
Tolerant practices towards multilingualism (range 1-5)	2.21 (1.01)	1115
Gender (reference category = male)		
Female	86%	1239
Male	14%	1239
Experience (range 0-49)	14.82 (10.32)	1253
Teacher category (reference category = primary school teacher)		
Kindergarten	27.9%	1177
Primary school teacher	45%	1177
Support teacher	15.6%	1177
Other teacher	11.5%	1177
SES (range 11-89)	51 (19.84)	1220
Multilingual home situation (reference category = no)		
Yes	17%	1241
No	83%	1241
School level		
Linguistic diversity (reference category = Mixed school)		
Minority dominant school	30%	67
Majority dominant school	25.4%	67
Region (reference category =Brussels)		
Ghent	32.9%	67
Limburg	31.3%	67

Stepwise multilevel modeling - Since teachers in the quantitative sample were nested in schools and we included variables at teacher and school level, we used multilevel regression analysis in SPSS 21. First, we estimated an unconditional model to determine the variance in tolerant practices towards multilingualism situated at the school level (Table 12, model 0). Then, we included the indicator of linguistic diversity (Table 12, model 1). Next, we included the indicator of region in order to prevent biased effects due to differing linguistic compositions in the different regions (Table 12, model 2). In order to exclude selection effects, we entered the individual characteristics of teachers that are presumed to relate to teachers' classroom practices (Table 12, model 3): teacher category, multilingual home situation, experience, SES and gender. The impact of these characteristics has, as far as we know, not been related to teachers' tolerant practices towards multilingualism. However, former research indicates a link between these variables and teachers' beliefs and attitudes towards minority pupils (Agirdag et al., 2012; Pulinx et al., 2016; Youngs & Youngs, 2001).

3.4.2. Qualitative part

The qualitative part of this study was conducted in ten primary schools that formed part of the broader quantitative sample. These ten schools were situated in former mining communities in the Limburg region of Flanders. These communities were multicultural and multilingual due to influxes of migrant employees in the mining industry. Consequently, schools in these communities had to address a linguistically diverse pupil population. The ten schools were representative of the entire range of linguistic diversity of the quantitative sample (see Figure 8).

The qualitative data consisted of audio-recorded focus group discussions with the schools' core team. These teams consisted of 3 to 6 members, often including the headmaster, 'special needs' teachers and language coaches. Sometimes regular teachers also formed part of the core team. These teams already existed in the participating schools, they were not drawn up as focus groups exclusively for research purposes. In all ten schools the core team had a wide array of responsibilities, including setting the agenda for staff meetings, discussing pupils with learning and/or behavioural problems, drawing up and implementing the school's language policy. Because of their pivotal role in the school's language policy, core team members can form a powerful guiding coalition (Kotter 2007) in influencing and changing the tolerant practices of the teachers in their schools. This possible change would be towards higher levels of tolerance – and

thus towards functional multilingual learning (Sierens & Van Avermaet, 2014) - , since our data showed that core team members (mean=2.4375) reported significantly ($\chi^2=3.881$, $p=0.049$) more tolerant practices towards multilingualism than their teachers colleagues (mean=2.01882).

During the discussions focus group members were asked about their ways of dealing with multilingualism, using guiding questions such as 'What comes to mind when you hear the word 'multilingualism'?', 'What past experiences do you have with multilingualism?', 'What do you consider to be the place of multilingualism at your school?'. All audio-recordings were transcribed verbatim. In order to find an answer to the research questions, transcripts were coded and analysed using the constant comparison method (Corbin & Strauss, 2008). This method allowed a systematic approach to analysing all focus group discussions, using alternating phases of coding and analysing in which codes of one focus group were constantly checked and refined against codes of other focus groups. This recurrent process of data coding and analysis was followed through until solid codes emerged and patterns could be identified.

3.5. Results

3.5.1. First research question

In order to answer the research question about the perceptions of the linguistic composition of pupil populations in school team members, we looked at the way they talked about multilingualism in education. When discussing the topic 'education and multilingualism', focus group members were found to differentiate between schools with different student populations. They thought in terms of a cline consisting of schools with only Dutch monolingual students (Monolingual Dutch schools) over linguistically diverse schools (Mixed schools) to schools with a high density of students sharing the same non-Dutch home language (Minority dominant schools). This distinction ran through the discourse of all focus groups, regardless of the linguistic composition of the school they work for. The monolingual Dutch schools were described in positive terms. These schools appeared to be the norm, with Dutch as the only language used by the students and teachers, at home and at school, except for the use of French in the language lab. These schools clearly embodied the preferred situation: 'We'd prefer all dads and mums to speak Dutch at home before the children start attending school. That is what we'd prefer.' (Headmaster, School 5) The Minority dominant schools were on the

other extreme of the cline. In our qualitative sample, core team members referred to the kind of Minority dominant schools they were most familiar with: in the province of Limburg this meant schools that had up to 90 percent linguistic minority students that are Turkish-speaking. These schools were negatively perceived, one of the reasons being that students were inclined to use their home language to communicate, excluding the schools' staff, who was unable to understand and control what their students were saying: 'It is a very different language, you know. I wouldn't be able to speak Turkish, absolutely not. But yes, we do not understand it, so you do have a problem then. You don't know what they are saying, you know.' (School 9, Special needs teacher). Focus group members referred to these Minority dominant schools as being non-desirable, calling them 'concentration' schools: 'Well, children with a different home language sometimes have a disadvantage regarding school language, the language of education. That is what I think. And we have to, especially in regions like Genk, monitor that every school has a healthy mix of children with a background, with a different language. So that we don't get the concentration stuff.' (Headmaster, School 3). The pejorative term 'concentration schools' is commonly used in Flanders for schools with a high share of ethnic minority and working class children. Van Dale Dictionary, a leading dictionary for Dutch, defines 'concentration' schools as schools of which the majority of its pupil population consists of children affected by achievement gaps, children primarily coming from ethnic minority groups. Agirdag et al. (2012, p. 367) stated that 'In the public discourse, concentration school is almost a synonym for a school with low instruction quality and weak academic performance'. Compared to these Minority dominant schools, linguistically diverse schools were more frequently talked about in positive terms. In these Mixed schools a lot of students speak various home languages that were different from the Dutch school language, but students were more inclined to use Dutch for communicating amongst each other. In this context, Dutch functions as the glue to bind students and teachers together. In example 1 teachers from School 7's core team discussed the school's transition from a Minority dominant to a more Mixed school, which they considered as positive.

Teacher 1: "But that is positive for our school. Because in the past, 10 to 15 years ago, we had only Turks."

Researcher: "Mm, yes."

Teacher 1: "Only Turks. And then Turkish is all that is spoken. Compared to now, a Turk talking to a Moroccan..."

Teacher 2: "Then they talk Dutch."

(Example 1, School 7, teachers grade 4 & 5)

The binding function of Dutch in Monolingual Dutch schools and Mixed schools was believed to reduce the use of other languages. Hence, school staff was less frequently confronted with languages other than Dutch, which might have been a possible explanation for their higher level of tolerance when students occasionally did use their home language. (Frequently) hearing other languages than Dutch in the playground and in the classroom, however, might have heightened the teachers' feelings of loss of control (example 2) and frustration about the (non-)integration of migrants, some of whom – according to the headmaster - have lived in Flanders for decades (example 3). Example 3 illustrated the latter in the words of a headmaster who was tired of having to provide an interpreter for the parents of some children.

Headmaster: "Because, you sometimes have kids who, for instance, not well-behaved or good, and they say, they say a dirty word in Turkish. We do not understand that language, you know. [...] I found it annoying when they started speaking Turkish in the classroom."

Teacher 1: "So you don't know what they are saying, you know. They can very well be calling you names amongst each other."

Teacher 2: "And you can feel that at a certain, that that those aren't nice words, you can tell that from the way they are saying it. There we felt..."

(Example 2, School 7, headmaster, teachers grade 4 & 5)

Headmaster: "But, to say the truth, these days it should be unnecessary to have an interpreter. Especially since we have been doing this for 40 years. That is really bad, but yes."

(Example 3, School 8)

3.5.2. Second research question

For what concerns the influence of the actual linguistic composition on tolerant practices towards multilingualism, we start by discussing the quantitative results. Next, we will look at how tolerant practices towards multilingualism are motivated, making use of the qualitative data analysis.

Regarding the quantitative analyses, the unconditional model of the multilevel regression showed that 34% of the total variance in tolerant practices towards multilingualism was between schools (variance component = 0.33, $p < 0.05$). Characteristics of the school thus seemed to influence the tolerant stance towards multilingualism that teachers have in their classrooms. This result motivated us to continue focusing on the effect of linguistic composition on teachers' tolerant practices towards multilingualism. The linguistic composition of schools was found to be related to the tolerant practices towards multilingualism, even when controlling for region and teacher level characteristics (Table 12, model 3). Teachers in Minority dominant schools and in Majority dominant schools seemed to be less tolerant towards multilingualism than teachers in Mixed schools.

Table 12: Association between linguistic diversity, cooperation between teachers and tolerant practices towards multilingualism.

	Model 0	Model 1	Model 2	Model 3
Intercept	2,211***	2,383***	2.232***	2.04***
School level				
Linguistic diversity (reference category = Mixed school)				
Minority dominant school		-0.358*	-0.383*	-0.43**
Majority dominant school		-0.244	-0.574**	-0.511**
Region (reference category = Brussels)				
Ghent			0.764***	0.75***
Limburg			-0.041	0.001
Teacher level				
Gender (reference category = male)				-0.064
Teacher category (reference category = primary school teacher)				
Kindergarten				0.546***
Support teacher				0.329***
Other teacher				0.205*
Experience				-0.001
SES				0
Multilingual home situation (reference category = no)				0.131°

Dependent variable: tolerance towards multilingualism, $p < 0.001 = ***$, $p < 0.01 = **$, $p < 0.05 = *$, $p < 0.1 = °$

To understand the nuances of this finding we had a closer look at how the focus groups discussed ways of dealing with multilingualism. This analysis revealed that the tolerance for multilingualism is not as straightforward as it seemed to be at first sight because the school's stance towards multilingualism interacts with personal preferences and is motivated by very different incentives, as is discussed below.

First, the link between schools' populations and tolerance (Quantitative analysis) held when talking about this topic in general. However, when it came down to their own school context, the participants started to deviate from the general principle that Mixed schools allow for more tolerance towards multilingualism than Monolingual Dutch schools and Minority dominant schools. Moreover, focus group discussions made it clear that the participants did not have an unambiguous, uniform view on the schools' language policies and tolerance practices towards multilingualism. Personal preferences and experiences came into play, which leads to disagreement within the schools' core teams. For instance, in one Minority dominant school (School 4) the headmaster allowed

for home languages to be spoken in the classrooms and on the playground. His permissive behaviour was contradictory to what one expects from the general tendency we observed, i.e. Minority dominant schools were less tolerant towards multilingualism. The less tolerant line was taken up by the other core team members of this school. They only occasionally allowed children to use their home languages in the classrooms to avoid mistakes because of language barriers and to speed up the learning process. Unlike their headmaster, they prohibited the use of languages other than Dutch on the playground. This example illustrated how personal preferences amongst core team members might lead to various practices within the same school, and school policies that were not always clear and unequivocal.

Next to personal preferences interfering with the schools' policies to tolerate multilingualism, we observed another factor that complicates the straightforwardness of the general tendency: schools had positive as well as negative motivations to tolerate multilingualism. Positive motivations to allow the use of home languages included concerns about the children's academic record (example 4) or their well-being (example 5). This involved using home languages as extra scaffolds for learning, or as a tool to soothe and put children at ease. The concern about children's well-being was frequently found in kindergartens and with recently arrived migrant children, but far less so in primary schools, which are attended by children from age six onwards. Children in primary schools were expected to be old enough to be proficient speakers of Dutch, enabling them to function at school and learn without having to rely on their home languages.

Headmaster: "So I've written down, Turkish is not forbidden at school, it is allowed when necessary in order to explain something to each other when one of the children does not understand the content in Dutch, then someone explains it in Turkish."

(Example 4, School 5)

Headmaster: "There is a difference in opinion between kindergarten teachers and primary school teachers as children grow older. They have a different view on that. Kindergarten teachers are more open to the other language, they accept that other language for the well-being of their toddlers. And we experience that higher grade teachers say, Yes, home languages. Here we only speak Dutch. Here we do not tolerate any other language."

(Example 5, School 6)

Next to these positive stimuli that allow students to use their home languages, we found numerous negative reasons to ban these languages. These are excluded from the scope of this study. In some focus group discussions, however, we detected negative motivations that actually lead to the tolerance of multilingualism. These involved schools putting up with home languages so that the use of these languages did not get out of hand and became uncontrollable.

Headmaster: "Well, because of that we decided not to say anything about that on the playground, because then the children on the playground, they are allowed to do so [to use various languages]. In primary school we won't say 'You're not allowed to do so', but as a teacher you interrupt and say 'Ah, what are you saying now? I couldn't understand what you were saying. Say it in... Then they will automatically use Dutch. But don't tell them 'You're not allowed to speak Turkish, you're not allowed to speak Turkish.' Because then we feel that this encourages the children to use it, as a counter reaction. You see."

(Example 6, School 4)

Example 6 showed that the headmaster of School 4 allowed children to speak any language they wanted on the playground. The reason for this permission, however, was not that children should be able to relax during breaks, to stimulate their play or to enhance their well-being. The reason for this acceptance stemmed from a negative rationale, namely prohibiting the home languages on the playground would make their use even more attractive, as forbidden fruit is sweetest. The ultimate goal of this tolerant stance towards multilingualism was to have a school in which only Dutch is spoken. The example also demonstrated that the permission was not granted wholeheartedly and remained ambiguous: children were authorized to use home languages at the playground, yet at the same time they got reprimanded and were asked to rephrase what they were saying in Dutch, so that the school staff could understand. Core team members indicated that they often gave up reproaching their students when they used home languages, because they were tired of doing so. Tolerating multilingualism then became a defeatist policy.

3.6. Discussion of the results

Using the home languages of multilingual pupils in teaching remains a challenge for many teachers (Gándara et al., 2005). Former research shows that teachers are underprepared for linguistically diverse classrooms and follow a monolingual ideology when considering how to teach multilingual pupils (Gogolin, 2002; Hélot, 2012). Several studies focus on the motivations for avoiding multilingualism in the classroom (Ramaut et al., 2013; Van den Branden & Verhelst, 2007), while little attention has been paid to aspects that encourage the tolerance of multilingualism in schools.

In this article, we related the linguistic composition of a school's pupil population to school teams' perceptions and practices concerning multilingualism using a mixed-method approach. On the one hand, quantitative research on a large data-set enabled us to compare a variety of school compositions, while on the other hand we gained a deeper insight into the perceptions and motivations of school teams when discussing ways of dealing with multilingualism at school.

The comparison of school teams' perceptions of various pupil populations, the teaching practices towards multilingualism in different schools and the motivations for different ways of treating multilingualism brought us to some interesting conclusions. We noted that school teams perceive schools with various linguistic compositions in a different

way. Schools with no or very few pupils who speak another language than Dutch were considered ideal. Less ideal were the Mixed schools and the Minority dominant schools, with the latter being connected to very negative perceptions. The linguistic composition of schools did not only influence perceptions, but also school team members' tolerance towards multilingualism. In mixed schools we registered, both in the quantitative as in the qualitative data, higher levels of tolerance than in Minority and Majority dominant schools. There was, however, no strict convergence between school categories in the quantitative and qualitative dataset. The so-called ideal Dutch monolingual school that focus group members referred to, did not exist in our quantitative sample. In urban settings or former mining communities with a large influx of pupils with a migration background, this ideal school appeared to be a utopia. Schools could be majority dominant, meaning that a majority of pupils exclusively speak Dutch at home while a minority of pupils – in our sample at least 17% - had another home language than Dutch. Still, the qualitative analyses showed that this utopia of Dutch monolingual schools remained a point of reference for many school team members. With respect to the Mixed Schools and Minority dominant schools, it was not clear which proportion of multilingual pupils and linguistic diversity in pupil populations school team members had in mind when talking about a 'healthy mix' in Mixed schools or 'concentration stuff' in Minority dominant schools. The two aspects involved in this categorization of schools, i.e. linguistic diversity and proportion of multilingual pupils, were important to take into account when considering the impact of the linguistic composition of schools, since teachers explicitly distinguished between schools with a mixed population and a homogeneous – either monolingual Dutch or one dominant minority language – population. The combination of these two measures, however, had not been considered in previous research. Pulinx and colleagues (2016) only looked at the concentration of – in the case of their study - ethnic minority pupils, concluding that teachers in schools with 40 to 60% ethnic minority pupils had more monolingual beliefs than teachers in schools with more or less ethnic minority pupils. This article, however, showed that considering the proportion of – in the case of our study – linguistic minority pupils might not be enough since teachers explicitly distinguished between schools with a mixed population and a homogeneous population. Our findings aligned with those of Pohan and colleagues (2009) who compared two categories of schools, i.e. urban and suburban schools, suggesting that pre-service teachers become more culturally responsive when working in urban schools that serve low-income students of color.

Two mechanisms lie at the root of the perceptions and the level of tolerance towards multilingualism, i.e. the expected proportion of the use of Dutch and the issue of control. Both work towards the aim of using as much Dutch as possible inside the school grounds. This finding aligned with the observations and research findings of Hélot (2012) who pointed out that this aim sometimes resulted in multilingual pupils becoming monolingual in the language of instruction through attending schools that consistently ignored their home languages.

As far as the expected proportion of the use of Dutch was concerned, Dutch monolingual schools were described as ideal. Obviously, in this so-called ideal school only Dutch is spoken and teachers claim that they do not need to invest in pupils that lack proficiency in Dutch. Mixed schools were considered less ideal, but were still perceived in a positive way because school team members believed that pupils in these schools naturally used and practiced a lot of Dutch as a lingua franca between peers. Because of this belief, it was not surprising that school teams say they would be more tolerant towards multilingualism in Mixed schools. With respect to the Minority dominant schools, we registered negative perceptions and lower tolerance levels towards multilingualism. The focus group data indicated that teachers feel the need to encourage the use of Dutch in these schools because they expected pupils to only use their home language in conversations with peers. The encouragement of Dutch in these schools often went hand in hand with a prohibitive policy towards multilingualism. This less tolerant stance was also obvious in the quantitative data on Majority dominant schools. This was a finding that could not be matched with the qualitative data, since the focus groups mainly discussed the more extreme situations where a large proportion or none of the pupils are multilingual. It might be interesting for future research to explore how teachers rationalize about schools with a modest proportion of multilingual pupils. We hypothesize that teachers in Majority dominant schools subscribe more to the prevailing monolingual ideology in Flemish society than their colleagues in Mixed schools, because of their limited experience with multilingual pupils. Teachers in Mixed schools, on the other hand, can rely on their lived experiences with linguistic diversity, observing their pupils using Dutch as a lingua franca among pupils and teachers alike.

When considering why school teams choose a tolerant approach towards multilingualism, we can conclude that different motivations can be at play. Both a negative and positive stance towards multilingualism can bring teachers to tolerate multilingualism. A leitmotiv in both positive and negative motivations towards tolerating multilingualism was the issue of control. Positive incentives, such as well-

being and the advancement of the pupils' learning process, allowed for merely occasional use of different languages in confined situations: during break on the playground or a quick translation in the classroom to speed up the lesson. These situations were limited to situations which did not seem to threaten the control of teachers over the learning processes of the children. Negative motivations for tolerating multilingualism also clearly originated from the issue of control: different languages were allowed, because otherwise pupils would be even more attracted to using them, resulting in the use of different languages getting out of hand. In the case of tolerating multilingualism as a defeatist policy, the school team might have the feeling to have lost control over the pupils' language use. The issue of control recurred in the school teams' perceptions of linguistic composition of pupil population: Mixed schools were considered to be better than schools with one dominant minority group, because Dutch was more frequently used as a lingua franca amongst peers. Dutch was considered the 'glue' to keep children from a linguistically diverse background together and – more important in the context of teacher control – it allowed teachers to understand them.

Our insight into the relationship between the linguistic composition of a school's pupil population and its tolerance practices towards multilingualism, allows us to carefully consider field placements for teacher trainees as a way of better preparing them for teaching children from different linguistic backgrounds. Since exploiting children's home languages as didactic tools can lead to better achievement, it is important for in-service and pre-service teachers to get some experience in Mixed schools, which tend to be more open towards multilingual teaching practices. However, cautiousness is important with regard to field placements, because of the possible negative rationale behind tolerance in Mixed schools. Therefore, field placements in Mixed schools should be supplemented with courses focusing on the importance and effects of functional multilingual learning and implementation possibilities.

The findings and limitations of our study raise new issues for future research. The different motivations for tolerating multilingualism, stemming from both a positive and negative rationale towards multilingualism, raise the question whether pupils experience these differences in teachers' motivations. An ethnographical study into the possible differences in teacher-pupil relations due to different motivations for tolerance might be a fascinating continuation of this study. Another point for further research on teachers' tolerance towards multilingualism concerns school characteristics. This article only takes the linguistic composition of the pupil population into account, but schools'

cultures and the linguistic composition of teacher teams might complement the knowledge on this topic.

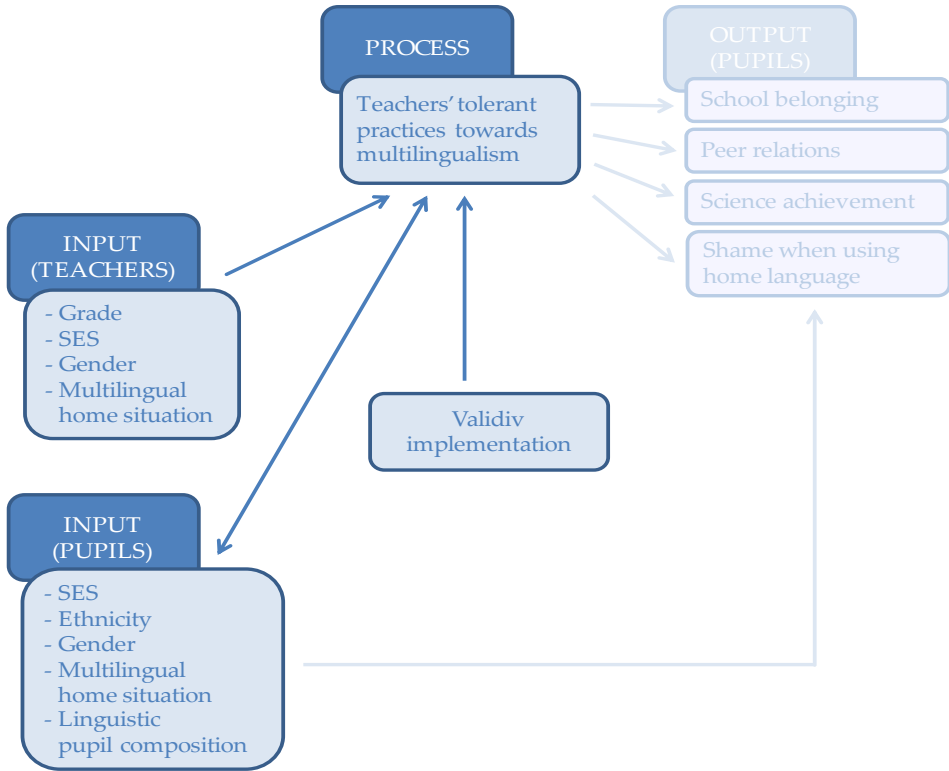
This article contributes to the knowledge base on teaching practices by taking the innovative perspective of what encourages school teams to act more tolerantly towards multilingualism. It focuses on characteristics of school composition and shows that different scenarios are possible. Teachers think differently about schools with various pupil populations and these differences also influence their teaching practices. This article has taken a first step into the exploration of these issues.

4. Opening up towards children's languages: Enhancing teachers' tolerant practices towards multilingualism

This chapter is under review for School Effectiveness and School Improvement.

ABSTRACT - Mainstream classroom teachers have difficulties managing children's linguistic diversity, often leading to restrictive language policies. Scientific research, however, recommends including pupils' multilingual realities in school. Various small-scale, qualitative studies have evaluated implementations in schools and indicate possibilities for improving teachers' attitudes towards multilingualism. This paper evaluates an experimental implementation targeting an increase in tolerance towards multilingualism among primary school teams. The implementation of the experimental tools was facilitated by external school coaches and consisted of three parts affecting the school as a whole. Data originate from 62 Flemish primary schools (of which about half were experimental schools) that participated in two waves of surveys (2012 and 2014, 763 teachers completed both waves). Since teachers were clustered in schools, we used multilevel regression to assess the impact of the implementation on teachers' tolerant stance towards pupils using other languages than the dominant language in several educational situations. We conclude that the implementation of the Validiv project has led to higher rates of tolerance. The fulfilment of the basic conditions needed for a successful change trajectory was important, while the linguistic diversity in the pupil population and the investment of the external school coach did not affect the tolerant practices of teachers towards multilingualism.

Figure 9: Aspects and relations in the operational model under focus in study 4



4.1. Introduction

Societies have become increasingly diverse due to migration (Vertovec, 2007). This caused pupil populations in schools around the world to become more linguistically diverse. A growing proportion of pupils use a different language at home than the language schools use for instruction.

Teachers wonder how to react to pupils with different home languages in their classrooms (Agirdag, 2009; Coleman, 2010) and often try to avoid allowing pupils to use other languages than the language of the school (e.g., Gogolin, 2002). Scientific research, however, advocates the integration of pupils' home languages to the learning process for pupils' wellbeing and achievement (e.g., García, 2009).

Researchers have worked together with schools, in order to change teachers' practices towards multilingualism (e.g., Blondin & Mattar, 2004; Ramaut, Sierens, & Bultynck, 2013; Verhelst & Verheyden, 2003), and have evaluated educational implementations targeting teachers' tolerance towards multilingualism. In these studies, however, mainly small-scale, qualitative methodologies are used: Small-scale observations and interviews were conducted or teachers assessed implementations retrospectively. Sporadically, quantitative data were gathered, albeit on a rather small-scale (Ramaut, Sierens, & Bultynck, 2013). These studies have contributed to the description of implementation processes and even brought subtle changes to light, indicating the possibility of improving teachers' attitudes towards multilingualism through educational innovation projects.

In this article, we look at the Validiv project (Valorising Linguistic Diversity in Multiple Contexts of Primary Education), an educational innovation aiming to change the way teachers deal with multilingualism in primary schools, and evaluate it using a large-scale quantitative methodology. The innovation consisted of three experimental tools that affected the school as a whole: teachers used a multilingual electronic tool in science class (only 4th and 5th grade), they obtained inspiration on how to utilize pupils' multilingualism for learning, and schools were involved in a language policy trajectory. This article focuses on the question whether teachers' practices in the classroom changed significantly due to the Validiv project. Not only do we examine the effect of the project as a whole, but we will also discuss the effects of some specific aspects of the implementation process on the school level.

4.2. Theoretical framework

4.2.1. Opening up towards children's languages: why is it important?

Migration and globalization cause societies to become more diverse than before. Migrants come from a multiplicity of countries and bring a wide range of languages with them. This tendency is not only seen in Europe (e.g., Duarte, 2011; Gogolin, 2002 for Germany; e.g., Vertovec, 2007 for the United Kingdom), but is also relevant in the USA (e.g., Byrnes, Kiger, & Manning, 1997). In Flanders more than 16% of the pupils in primary education speak a language other than Dutch at home and this proportion is still increasing (Crebits, 2015).

Teachers often wonder how to handle the linguistic diversity pupils bring to school (Agirdag, 2009; Coleman, 2010; Johnson, 2012; author, 2014). Many teachers think that dealing with diversity is difficult (Dooly, 2005). They generally feel unprepared to teach multilingual pupils (Coleman, 2010; Johnson, 2012). Therefore, they rely upon common-sense beliefs about multilingualism, namely that the supposed best way to learn a language is through submersion in that language, hence identical to how people acquire their first language (Cummins, 2008; author, 2014). This leaves no room for multilingual pupils' languages and leads to the suppression of all linguistic diversity in classrooms (Gogolin, 2002; McLaughlin, 1992). Ramaut and Sierens (2011) observed that the home language of pupils was banned from classrooms and teachers focused on maximum exposure to the dominant language. Teachers believe that every second should be invested in pupils' acquisition in the dominant language (Van den Branden & Verhelst, 2007).

Sociolinguistic research, however, has shown how multilingual children use their linguistic repertoires in a natural, integrated way (e.g., Jorgensen, 2005). Although they might be studying in monolingual contexts, this does not necessarily mean that they think, and thus learn monolingually (Busch, 2010). Since the ideology of multilingualism in terms of parallel monolingualisms is powerful in many schools, practices of translanguaging are often seen as a deficit (Heller, 1999). These insights about how multilingualism works, have brought scholars like García (2009) and Cummins (2001) to theorize about integrating pupils' multilingual realities in education. Including pupils' home languages in the school might enhance both their wellbeing and achievement. As Cummins (2001, p.19) said: "To reject a child's language in the school is to reject the child". Pupils may feel uncomfortable or demotivated when their languages, part of their identity, are pointed out as causing school failure (Cummins, 2001). Multilingual pupils are often told to concentrate on the dominant language, while their home languages are portrayed as barriers for school success (Agirdag, 2009; Van den Branden & Verhelst, 2007). In this discourse, emphasis is laid on pupils' weaknesses, resulting in pupils' impression that teachers do not believe in them and lowering multilingual pupils' wellbeing. In schools where teachers take a more tolerant stance towards multilingualism, pupils have a stronger sense of school belonging (author, 2013) and more self-confidence than pupils in other schools (Ramaut, Sierens, Bultynck, et al., 2013).

A more welcoming stance towards multilingualism might also benefit pupils' academic achievement since it might fit the learning process of multilingual pupils better (Cummins, 2008; García, 2013; Jorgensen, 2005). The integrated use of their linguistic

repertoires is more natural for multilingual pupils (e.g., Jorgensen, 2005) and might thus result in stronger learning. García (2013) argues that different languages are used simultaneously in the multilingual mind and she therefore advocates the integrated use of the multilingual repertoires of pupils in the classroom. Similarly, Cummins (2008) states that separating the languages of multilingual pupils is counterproductive for learning purposes. Sierens and Van Avermaet (2014) apply and translate these ideas for schools where pupils bring a very wide variety of home languages to the classroom.

Various innovative projects concretely aim at including multilingualism in schools (e.g., Maraillet, 2005; Saudan, 2005). Projects focusing on language awareness generally show teachers reporting the projects' effectiveness (e.g., Fidler, 2006). Teachers confirm that the projects stimulate pupils' curiosity towards languages and promote pupils' positive attitudes towards other cultures (Blondin & Mattar, 2004; Fidler, 2006). Various projects focus on using multilingualism in pupils' learning process (e.g., Bourne, 2001; Ramaut, Sierens, & Bultynck, 2013; Van Avermaet & Sierens, forthcoming). These projects indicate their power to influence teachers' beliefs and classroom practices. In Flanders, the Home-Languages-in-Education-Project (Ramaut, Sierens, & Bultynck, 2013) reports that in control schools, 10 out of 35 teachers did not allow other languages to be used in the classroom, while in schools that had participated in the project, all teachers allowed other languages. As far as the methodology for studying teachers' behaviour in these projects goes, researchers have mainly focused on qualitative methodologies such as observations (Bourne, 2003; Maraillet, 2005; Ramaut, Sierens, & Bultynck, 2013), teachers' diaries (Fidler, 2006; Saudan, 2005) and interviews (Ramaut, Sierens, & Bultynck, 2013). Some projects also include quantitative results, but samples are mostly small, providing insufficient statistical power for an analysis of school effects (e.g., Blondin & Mattar, 2004). Generally, no control schools or pretests are included (for an exception see Ramaut, Sierens, & Bultynck, 2013).

4.2.2. Tolerant practices towards multilingualism: differences between teachers and schools

Both experiences of individual teachers and characteristics of schools, might influence the way teachers handle multilingualism in their classrooms.

Former research has suggested several predictive individual teacher characteristics for tolerant practices towards multilingualism: gender, grade level, SES and experience.

Considering that female teachers tend to show more positive attitudes towards multilingualism than male teachers (Youngs & Youngs, 2001), it might accordingly be that women show more tolerance towards multilingualism in their classroom practices than their male counterparts. The grade level teachers teach in can influence teachers' tolerant practices towards multilingualism. The Flemish Home-Languages-in-Education-Project (Ramaut, Sierens, & Bultynck, 2013) found that kindergarten teachers tolerated the usage of home languages consistently more than primary school teachers. A high socio-economic status in teachers was found to predict more positive language attitudes as compared to teachers of lower socio-economic status (Byrnes, Kiger, & Manning, 1997), and might as a consequence also affect teachers' tolerant practices. Just as research demonstrated that more experienced teachers exhibit less positive attitudes towards minority pupils and instructional innovations than less experienced teachers (e.g., see Agirdag, Loobuyck, & Van Houtte, 2012 for attitudes towards muslim pupils; see Ghaith & Yaghi, 1997 for attitudes towards implementing new instructional practices), similar processes might be at play where tolerant practices towards multilingualism are concerned.

More experience with a diverse pupil population seems to help teachers to cope with challenges resulting from linguistic diversity. Various studies have found that teachers' exposure to diversity has a positive impact on attitudes towards diversity at school (Pohan, Ward, Kouzekanani, & Boatright, 2009). Youngs and Youngs (2001) found a positive effect of diversity in contact with multilingual pupils on teachers' attitudes. Teachers working with diverse pupil populations tend to have more positive attitudes than teachers without as much contact and familiarity with multicultural and ethnic diversity. Youngs and Youngs' (2001) research, however, has focused on teachers' attitudes, while this article focuses on tolerant *practices* towards multilingualism reported by teachers. Qualitative observations in diverse classrooms show a strong monolingual ideology in teaching practices (Cekaite & Evaldsson, 2008; Gogolin, 2002), although teachers do allow multilingualism on rare occasions and in rather small amounts in groups with diverse linguistic backgrounds (Cekaite & Evaldsson, 2008; Lee, Lewis, Adamson, Maerten-Rivera, & Secada, 2007).

There is, thus, tension between teachers' strong emphasis on the use of the dominant language as the language of instruction and the positive effects of linguistic diversity on language attitudes. This tension could be explained by Bourdieu's concepts of interiorization and exteriorization (Bourdieu, Hofstede, & Pels, 1989). Teachers might exteriorize ideologies, which they interiorize from elsewhere, in the field of the school.

Teachers are exposed to influences at macro, meso and micro levels (Ricento & Hornberger, 1996). At the macro level, mainstream language ideologies influence how teachers manage pupils' multilingualism. Pulinx and colleagues (2016) found that as much as 77% of Flemish teachers agreed that non-Dutch speaking pupils should not be allowed to speak their home language at school, a belief that strongly mirrors the ideology of the Flemish government. Nevertheless, this also leaves 23% of teachers who do not completely echo the official policy (Pulinx et al., 2016). On the meso level, schools can influence teachers through differences in school vision and teacher team characteristics, such as language ideologies expressed by teacher colleagues (Ricento & Hornberger, 1996). Teachers in very mixed schools might be additionally affected by the extra teacher training about diversity that is often provided in these schools (Tatar & Horenczyk, 2003). Therefore, it might be that teachers in more diverse schools think more positively about multilingualism. At the micro level, every teacher brings different life experiences to school (Ricento & Hornberger, 1996). Some teachers have experience with multilingualism in their own homes, while others do not. The perspective that teachers are influenced by a large array of possible experiences clarifies why teachers cannot be seen as being shaped entirely and exclusively by any one of these experiences; they always possess some leeway to oppose philosophies on both macro and meso levels (e.g., Shohamy, 2006). Some teachers might advocate a certain ideology (Shohamy, 2006), while others might oppose and change that ideology (Galdames & Gaete, 2010; Hélot, 2010; Menken & García, 2010). That contrast might even be seen as a continuum on which teachers take in-between positions: Research by Creese and Blackledge (2011) has noted that teachers might explicitly express beliefs of separate bilingualism in their discourse, but this does not always match their teaching practices of flexible bilingualism. The link between ideology, a school's point of view and teachers' beliefs and practices is thus not straightforward and changing any of these aspects is always a difficult and complex process.

4.2.3. School improvement: How to make schools change successfully?

Schools have a responsibility to adapt continuously to a constantly changing social environment/world/society. This entails rethinking which skills and knowledge should be offered in schools and how this can best be done.

School improvement research (SIR) focuses on the processes of change that schools go through to become more effective (Hopkins, 2001). Research shows that teachers'

mindsets towards innovations are crucial for the implementation process to succeed (Fullan, 2001; Muijs et al., 2014). Changing their classroom practice often involves uncertainty and concerns on the part of teachers (Geijsel, Slegers, van den Berg, & Kelchtermans, 2001; van den Berg & Ros, 1999). Just as pupils need a safe environment to ensure learning happens, teachers need support in order to move through processes of change and professional development (Harris, 2002). Schools have the power to provide this safe learning environment in order to facilitate improvement in classrooms. Three aspects of the school are important in this respect. The first aspect is leadership (Harris, 2002; Hopkins, 2001; House & McQuillan, 2005; Leithwood & Jantzi, 2006): A guiding person should provide both support and pressure to teachers in a balanced way (Stoll, Fink, & Earl, 2003). On the one hand, teachers need guidance and support as they pass through a challenging process when innovating classroom practices. On the other hand, this leader should also put pressure on teachers to continue experimenting and pushing their limits. Moreover, it is known that including teachers in decision making is beneficial for schools' capacity to change (Muijs, Harris, Chapman, Stoll, & Russ, 2004). Secondly, some basic conditions need to be fulfilled concerning the atmosphere at school to encourage innovation in teachers. Teachers need an open and trusting work environment to gain confidence in experimenting in the classroom (Clement, Slegers, & Vandenberghe, 1995; Harris, 2002; Hopkins, 2001). This can be established by using open communication, by encouraging positive collegial relations and by providing teachers with professional development in their everyday environment (Harris, 2002; Hopkins, 2001; Stoll et al., 2003). A third important determining aspect for schools' innovative power is the pupil population. Thrupp (1999) looked at schools with a challenging pupil population, a population with a high proportion of minority pupils and pupils from low socio-economic backgrounds. Research shows that these schools need to invest lots of energy and time to ensure the conditions are right: monitoring truancy, providing pupils with the material resources they need, guaranteeing a minimum level of security and motivation in pupils (Muijs et al., 2004; Thrupp, 1999). All these obstacles might prevent schools from implementing innovative classroom practices – they may simply lack the starting conditions to do so.

Schools differ in their readiness for reform and therefore require different strategies in order to change (Bellei, Vanni, Valenzuela, & Contreras, 2015; Slavin, 2005). Failing schools might need more external support in order to change, than effective schools that want to remain effective (Hopkins & Harris, 1997). Slavin (2005) distinguishes between seeds, bricks and sand schools. Seeds schools are ideal for school improvement. Teachers

have an open mind and in these schools leaders launch a lot of ideas and ensure a safe environment for teachers to experiment. In bricks schools, teachers want to change but do not directly recognize the need. Change takes effort and time but will be sustained over time. School teams in sand schools are convinced they are already doing a good job. Therefore they will rapidly return to the original situation after implementing an educational innovation.

4.2.4. Changing schools' stance towards multilingualism: How the Validiv project tried to influence schools

The Validiv innovation aimed at promoting pupils' learning process by offering space for pupils' home languages at school. The Validiv project was designed based on the notion of "functional multilingual learning" (Sierens & Van Avermaet, 2014). This notion states that pupils' home languages can be utilized as didactic capital, as a scaffold for learning. Teachers can allow and encourage pupils to use their multilingualism for learning, while they do not need to know every language that is spoken by their pupils. Pupils can learn by looking up information in their home language or interacting with peers who share their linguistic background.

As recommended in SIR (e.g., Hopkins, 2001), the Validiv project has aimed to affect both the classroom context and the broader school environment. Three innovations were implemented. The first two were directed at the classroom level: E-Validiv was a multilingual electronic tool that could be used in 4th and 5th grade science classes. It enabled pupils to switch between Dutch and another language at their own pace in order to acquire new knowledge about science topics. The Validiv case collection was an inspiring selection of tools that could be applied to everyday class situations. Teachers could select superficial or profound classroom changes, depending on their willingness to experiment. A third tool, the Validiv school policy guide, was intended for coordinating figures at school, such as principals. The school policy guide was an instrument to screen and change the school policy regarding languages and open the school towards multilingualism.

The introduction of the Validiv tools in the schools was supported by SIR principles (Guskey, 1988; Harris, 2002; Hopkins, 2001; Stoll et al., 2003). First, there was an introductory talk with the school team where the Validiv tools were presented by the coach. School coaches were provided with a school-specific report on the overall score of

a school based on data from the first measuring moment (T1). As stated in SIR (Stoll et al., 2003), these numbers helped the school coach to point out schools' growth potential. In this way, the school coaches aimed at motivating school teams to change. Afterwards, the Validiv school coaches assisted the schools in outlining an action plan. These action plans were very much particularized according to the school culture and challenges a school met, since this is an important condition to make the innovation trajectory work out (Harris, 2002). For the implementation of E-Validiv, a somehow uniform approach was used in the different schools. An important aspect in this process was the balance between support and pressure (Guskey, 1988). Teachers received a manual to facilitate the use of the electronic learning environment and were supported by contact persons when having technical or substantive questions. The answers to these questions were made available for all participating teachers through the "frequently asked questions"-overview on the website. The external Validiv coaches were provided with information on the usage of E-Validiv in different schools. In this way, they were able to find out what was troubling teachers, to take away uncertainties and to encourage teachers that had been less active in using the electronic learning environment. The external school coach provided teachers with a critical friendship, since the coach was a person who was on their side, trying to help them in their teaching practices, while at the same time being honest and critical about their teaching behaviour (Hopkins, 2001).

4.3. Research questions

This article evaluates whether the Validiv project succeeded in enhancing teachers' tolerant practices towards multilingualism. The first research question is whether the Validiv project changed teachers' tolerant practices towards multilingualism. The research not only looks at differences between experimental and control schools, but also at other factors that might facilitate or hinder the implementation. The literature pointed out three important aspects in that respect: the schools' pupil population (Pohan, Ward, Kouzekanani, & Boatright, 2009; Youngs & Youngs, 2001), an open and trusting working environment for teachers (Harris, 2002) and the presence of a supportive coach in the innovation process (Stoll et al., 2003). The second research question focuses on pupil populations in schools and asks to what extent the impact of the Validiv project on tolerant practices towards multilingualism is influenced by a linguistically diverse population. Next, we investigate whether teachers' tolerant practices towards multilingualism were affected by the extent to which basic conditions for an innovative

trajectory were met in their school. As a last research question, we pay attention to whether the external school coach's investment in a school influenced teachers' tolerant practices towards multilingualism.

4.4. Methodology

4.4.1. Sample

Data were gathered in 67 primary schools in Flanders as part of the Validiv project. We conducted multistage sampling. First, we selected three Flemish regions with linguistically diverse populations (Brussels, Ghent, and the mining region of Limburg), and then schools within these regions. Since schools are swamped with requests to participate in research, the response rate was rather low (31% of the initial sample agreed to participate). Schools in Flanders generally use a "first come, first served" practice, in which they decide which research to participate in on the basis of when they are invited and whether a commitment to a research team can be combined with the already existing workload. This resulted in a response that is unrelated to schools' linguistic composition.

This study made use of data of two measurement moments in the same schools. The data of the earliest time point were gathered between October and December 2012 (hereafter referred to as T1). All teachers in the schools were invited to complete paper-pencil-surveys, resulting in a participation of 1255 teachers (75.4%) from 67 different schools. At a later time point (T2), spring 2014, 1000 teachers from 60 schools filled out the survey. Of these teachers, 763 had also filled out the first questionnaire, which means there was 39% attrition. Due to missing data on the variables used in the analysis, data of only 528 teachers were used.

4.4.2. Measures

Dependent variable - Tolerant practices toward multilingualism were measured on both T1 and T2, with the measure on T2 being the dependent variable. We used a four-item scale, introducing the four items by stating "Every teacher has their own way of teaching. These statements deal with what you would tolerate or not if you were to teach pupils whose home language was not Dutch." Then the four items followed. An example of an item is "Pupils are allowed to use a language other than Dutch to explain

the content to another pupil.” Item correlation substitution was used for missing values (Huisman, 2000). We replaced missing values in an item by the value of the item correlating most highly with that item. This reduced missing values from 31% missing on at least one of the original items to about 10% in the items that were used for scale construction. Confirmatory factor analysis showed that all items measure the same underlying concept and the scale’s Cronbach’s alpha was 0.86. In former research, we compared the reported practices of teachers with pupils’ perceptions - measured by the same items, only reformulated from the point of view of the pupils (author, forthcoming). Both reports correlated strongly ($r=0.65$, $p<0.01$), indicating that there was no important social desirability bias for this measure. On average, teachers scored 2.55 on a scale from 1 to 5 with a standard deviation of 0.99 (see Table 13). Higher values on this scale indicate more tolerant practices.

Table 13: Descriptive statistics for dependent and independent variables: frequencies (%), means and standard deviations

	Mean (SD), %
Teacher level	
Tolerant practices towards multilingualism (T2) (range:1-5)	2.55 (0.99)
Tolerant practices towards multilingualism (T1) (range:1-5)	2.17 (0.99)
Gender (reference category: men)	86%
Grade (reference category: primary school)	
Kindergarten teacher	28%
Support teacher	15%
Other teacher	8%
Experience (range: 0-49)	14.58 (9.72)
SES (range: 11-89)	51.73 (19.51)
School level	
Dummy project condition (reference category: control)	42%
Linguistic diversity (range 0.15 - 0.88)	0.66 (0.15)
Meeting basic conditions for innovation (range 1-5)	3.15 (1.38)
Investment of external school coach (range 1-5)	3.39 (1.29)

School level variables - Linguistic diversity (T1) is measured by using the Herfindahl index (Dronkers, 2010; Putnam, 2007) applied to linguistic composition by taking both group size of every linguistic group present and the diversity in linguistic groups into account. The index is calculated using this formula: $-1 \times [(\text{proportion linguistic group } 1)^2$

+ (proportion linguistic group 2)² + ... + (proportion linguistic group n)²] + 1 . Values for this index range from 0 to 1, with a value of 0 indicating that only one home language is present at school; this could be Dutch or any other language. A value of 1 indicates that every pupil in the school uses a different language at home. The average linguistic diversity in this study is 0.4 with a standard deviation of 0.21 (Table 13).

A dichotomous variable indicates whether a teacher is part of a school in the control or the project condition. Twenty-seven schools participated in the study as project schools, while another 33 schools were involved in the control condition (see table 13).

Since the remaining school level variables are only applicable for schools in the project condition, the average and standard deviation of these variables are based on data of teachers in those schools only (see table 13). The first of these conditionally relevant variables focuses on the extent to which an external school coach believes a school has met the basic conditions for a fruitful innovative process. The external school coaches were provided with five hypothetical situations and appointed the most comparable situation to every school. The measure of meeting the basic conditions for innovation goes from 1 (indicating that the school did not meet the basic conditions) to 5 (indicating that the school convincingly met the conditions) with an average of 3.15 and a standard deviation of 1.38 (see table 13). A second conditionally relevant variable indicated the energy and time an external school coach invested in the coaching process in every school. This measure made use of hypothetical situations as well. The measure of investment of the external school coach goes from 1 (no investment) to 5 (a large investment) with an average of 3.39 and a standard deviation of 1.29 (see table 13).

Teacher level variables - Five measures on the teacher level were included: Tolerant practices towards multilingualism at T2 and gender, grade, experience and SES, the latter measured at T1.

The original level of tolerant practices toward multilingualism was measured at T1 in teachers using the same four-item scale as at T2 (see above for explanation on dependent variable). On average, teachers scored 2.22 with a standard deviation of 1 (see table 13).

The sample consisted of 454 women (86%) and 74 men (14%). Of the teachers, 49% teach in primary school, which was used as reference category, 28% were kindergarten teachers, 15% were support teachers -- providing extra support for pupils with difficulties in learning (e.g., concentration problems or dyslexia) or providing academically strong pupils with extra challenges, in pull-out classes or in the

mainstream classroom -- and 8% belonged to the category of "other teachers". This category consisted mainly of sports and religion teachers. The teachers in the sample averaged 14.58 years of experience with a standard deviation of 9.72. We used the ISCO-coding system to construct an ISEI scale to quantify the SES of teachers (Ganzeboom & Treiman, 2013). Teachers in this sample had an average SES of 52 with a standard deviation of 19.51.

4.4.3. Research design

Since teachers were nested in schools and we included variables of teacher and school level in the analyses, we used multilevel regression in MLwiN 2.16. We started by estimating the unconditional model to determine the variance of tolerant practices towards multilingualism (T2) situated at the school level (Model 1). Then, we included the dummy variable indicating the condition of schools (Model 2). In this way, we could distinguish between the tolerant practices towards multilingualism in schools in the project or the control condition. In the third model, we included a measure for linguistic diversity in the pupil populations and then, we inserted an interaction term between this measure and the condition of schools (Model 4). As Thrupp (1999) noted, it might be that the implementation of innovations is harder in schools where the pupil population is perceived as challenging.

For schools in the project condition, two variables were included in the model that focused specifically on the way the project was implemented. These could obviously not be measured for teachers in the control condition. Therefore, they were included as interaction terms, with the dummy variable indicating the condition of schools – without main effects, for obviously, these effects can only be estimated for experimental schools. For a detailed explanation of this technique, see Ross and Mirowsky (1992). We included a measure indicating the extent to which the basic conditions for an innovative trajectory were met in a school, according to the external school coach (Model 5) and an indication of the time and energy invested by the external school coach while coaching the school (Model 6). After looking at the effects of the conditionally relevant variables separately (Model 5 and 6), we added them together so we would control for correlation between both (Model 7). Next, four control variables (T1), were added to the model: gender, grade level, experience and SES. In this way, we could estimate the differences in tolerant practices between teachers with different backgrounds (Model 8) concerning gender, grade level and teacher SES. Then, we controlled teachers' tolerant practices for

tolerant practices towards multilingualism at T1(Model 9), since in the research of Ramaut and colleagues (2013), teachers who handled multilingualism in a more positive way before starting the implementation showed a larger development in these practices than teachers who were not familiar with including multilingualism at the start of the implementation. In the final model, model 10, we excluded the conditionally relevant variables from the model in order to be able to see the effect of the condition of schools controlled for the teacher level variables.

4.5. Results

The analyses showed that at the end of the project, teachers working in experimental schools tolerated multilingualism more than teachers in control schools (Table 14, model 2). This effect remained significant when adding the linguistic diversity of the pupil population to the model (Table 14, model 3). The answer to the first research question is therefore affirmative. In the models 4 until 8, we could not assess the importance of the variable of condition any more, as this was the effect of the condition if the value on the included conditionally relevant variables was 0 (see also Ross & Mirowsky, 1992). For example, in model 5, the coefficient of the variable of __condition showed the effect of the experimental condition for schools that scored 0 on the basic conditions for innovation. We estimated the effect of experimental condition again with all the control variables on the teacher level without the conditionally relevant variables, and this analysis showed that the effect of experimental condition still held when controlled for teacher characteristics (Table 14, model 9).

Table 14: Results of multilevel regression analysis (unstandardized β) on dependent variable of tolerance towards multilingualism (T2), N=517

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	2.605***	2.420***	2.419***	2.424***	2.416***	2.419***	2.416***	2.129***	2.229***	2.226***
School level										
Condition (ref. cat.: control)	0.410*	0.410*	0.410*	0.402*	-0.263	-0.010	-0.416	-0.255	-0.113	0.271**
Linguistic diversity			-0.102	0.434	-0.066	-0.048	-0.043	0.019	-0.337	-0.355
Meeting basic conditions for innovation					0.225**		0.210**	0.162*	0.107*	
Investment of external school coach						0.131	0.062	0.055	0.018	
Interaction Condition * Linguistic diversity				-1.666						
Teacher level										
Original tolerance towards multilingualism (T1)									0.485***	0.488***
Gender (reference category = male)								-0.014	0.027	0.020
Grade (reference category = primary school)										
Kindergarten								0.770***	0.496***	0.508***
Support teacher								0.497***	0.264**	0.283**
Other teacher								0.106	0.020	0.025
Experience								-0.001	0	0
SES								0.001	0.001	0.001

$p < 0.001 = ***$, $p < 0.01 = **$, $p < 0.05 = *$, $p < 0.1 = \circ$

The second research question focused on whether the effect of the condition varied between schools differing in linguistically diverse pupil populations. Since the interaction term of linguistic diversity and condition did not become significant (model 4), we could conclude that tolerant practices in teachers did not depend on the linguistic diversity of the pupil population of their school.

The third research question concentrated on the basic conditions for innovation. In schools that – to the judgment of the external school coaches – fulfilled the basic conditions for innovation more, teachers were more tolerant towards multilingualism after the Validiv innovation was implemented in their school than teachers in schools where the basic conditions for innovation were not met (Table 14, model 5). This effect remained significant when teacher level control variables were added to the model (Table 14, model 9).

The last research question looked at the effect of the investment of the external school coach. This variable did not seem to impact the outcome variable (Table 14, model 6). It seemed that the investment of an external school coach did not seem to matter for teachers' tolerance towards multilingualism.

As for teacher characteristics, we found no differences between teachers for gender, SES and experience. We did find that kindergarten teachers and support teachers were more tolerant towards multilingualism than their mainstream class colleagues from primary school (Table 14, model 8). We found a logical effect of teachers' original tolerance towards multilingualism: Teachers that were more tolerant on T1, were more tolerant on T2 as well (Table 14, model 9). Since we then added the original tolerance towards multilingualism to the model after the control variables on teacher level, these variables now showed the differences in growth in tolerant practices for different teacher characteristics. Gender, experience and SES did not show significant effects (Table 14, model 9), so differences in these characteristics did not lead to a different intensity of tolerant practices. The grade a teacher taught in did affect his/her growth in tolerant practices towards multilingualism (Table 14, model 9): Kindergarten teachers and support teachers reported significantly more tolerant practices than primary school teachers, independently of the condition their schools participated in. We found no significant difference between the category of other teachers and primary school teachers.

4.6. Conclusion

Monolingual ideology impacts teachers' practices and beliefs towards multilingual pupils (e.g., Gogolin, 2002). Many teachers believe that banning the home languages of multilingual pupils from school is in their best interest (Gogolin, 2002; McLaughlin, 1992). Sociolinguistic research, however, shows that multilingual pupils use their linguistic repertoires in an integrated, natural way (Jorgensen, 2005). Therefore, it might help these pupils to be allowed to use their home languages for learning (Cummins, 2001; García, 2013). Several projects have aimed at enhancing teachers' tolerance towards multilingualism (e.g., Bourne, 2001), but this study is unique in using large-scale quantitative data including a pre- and post-test, and control schools (for an exception see Ramaut, Sierens, & Bultynck, 2013).

Using a pre- and post-test enables us to state that differences in tolerant practices between schools in different conditions were not caused by pre-existing differences between schools — prior to the innovative implementation. The participation of control schools is also important, since this shows that changes in tolerant practices were not due to contextual factors to which both the Validiv schools and the control schools were exposed to. The large number of schools in this study allowed us to compare the effects of school characteristics, while other studies could only assume that certain school characteristics encouraged tolerance towards multilingualism.

SIR has put forward several important aspects in the process of innovating in schools (e.g., Harris, 2002; Hopkins, 2001; Stoll et al., 2003). These were applied in the Validiv project, a project aimed at promoting pupils' learning process by offering space to pupils' home languages in primary education.

The analyses show that the Validiv project has led to a higher rate of tolerance, even when controlling for teacher characteristics (research question 1). We evaluated two aspects of the implementation process on top of the mere experimental condition of schools. We found that the fulfilment of the basic conditions for a successful change trajectory, was very important (research question 3). Apart from being an important stimulator for positive change in schools, it has been suggested that the fulfilment of basic conditions for innovation is important for the long-term sustainability of school improvement (Muijs et al., 2004). The investment of the external school coach, on the contrary, did not seem to affect the tolerant practices towards multilingualism (research question 4). On the one hand, this might be due to a lack of (wo)manpower, since only four people (of which three part-time) were available to coach 27 experimental schools.

Since the implementation phase only lasted for two schoolyears, the school coaches might have been understaffed to bring about quantitatively measurable results. On the other hand, it might not be surprising that external school coaches have invested more time and energy in schools that had more difficulties with changes. In that sense, most time and energy is invested in schools that evolve less naturally into new practices (Slavin, 2005). The analyses also show that the linguistic diversity of schools does not stimulate teachers to experiment with tolerating multilingualism at school (research question 2). We did not find a negative impact of the interaction term between linguistic diversity and condition on teachers' tolerant practices, indicating that this study does not confirm Thrupp's (1999) thesis that a challenging school population hinders the implementation of change due to these schools having more difficulties in investing in change capacity (Muijs et al., 2004). At the same time, we did not find a positive impact, either. The linguistic diversity of a pupil population did not encourage a school to be more tolerant towards multilingualism in teaching. It might be that teachers in strongly diverse schools do not feel the need to pay attention to multilingualism, since in those schools the dominant language can be more convincingly imposed as a lingua franca (author, 2014).

Kindergarten teachers have been found to be more tolerant towards multilingualism (Ramaut, Sierens, Bultynck, et al., 2013) and this finding is also reflected in our study. This might be due to differences in focus between kindergarten teachers and teachers from primary school, which are also reflected in educational policies (Crevits, 2015). Kindergarten teachers might focus more on the child and its development, while in primary school, teachers are more focused on the acquisition of the curriculum. Besides, our study also shows that independent of their original tolerance level and of the condition their school participated in, kindergarten teachers showed a stronger growth in tolerance towards multilingualism than primary school teachers. The same pattern was seen for support teachers. This is not a very surprising result in terms of the schools participating in the Validiv project, since SIR found that innovations congruent with the teaching methods of a certain teacher are easier to adopt than innovations that do not fit his/her way of teaching (Ghaith & Yaghi, 1997; Guskey, 1988). For the teachers who were more tolerant towards multilingualism in the control schools, this study also shows that they had begun to employ more tolerant practices towards multilingualism between T1 and T2 than their less tolerant colleagues even though they did not receive any special coaching on the topic of multilingualism.

From this research, we can conclude that the Validiv project has shown the strongest effect in school contexts where the least change was needed. In schools that were more prepared for an experimental implementation, a stronger development towards tolerating multilingualism was seen in teachers. Of course, it is very important that schools that are prepared to innovate continue doing so (Stoll et al., 2003). Other schools, however, struggle with innovative practices and very often this does not have to do with the content of a certain innovation but rather with the preparedness of a school to be reflective and self-evaluative (Slavin, 2005; Stoll, 2009). These findings point to the recommendation for other implementation processes to invest more in the coaching of schools and teachers in order to prepare them for changing their practices. Changing processes are always connected with anxiety and doubts regarding the benefits of a specific project. Therefore, schools need to invest in their capacity for change (Harris, 2002; Schein, 1992; van den Berg & Ros, 1999). Teachers need to be convinced that change is needed, need to be informed on the topic, need to be motivated to take action and should be provided with directions on how to accomplish the change in an environment in which it is safe to make mistakes and experiment (Fullan, 2001; Schein, 1992).

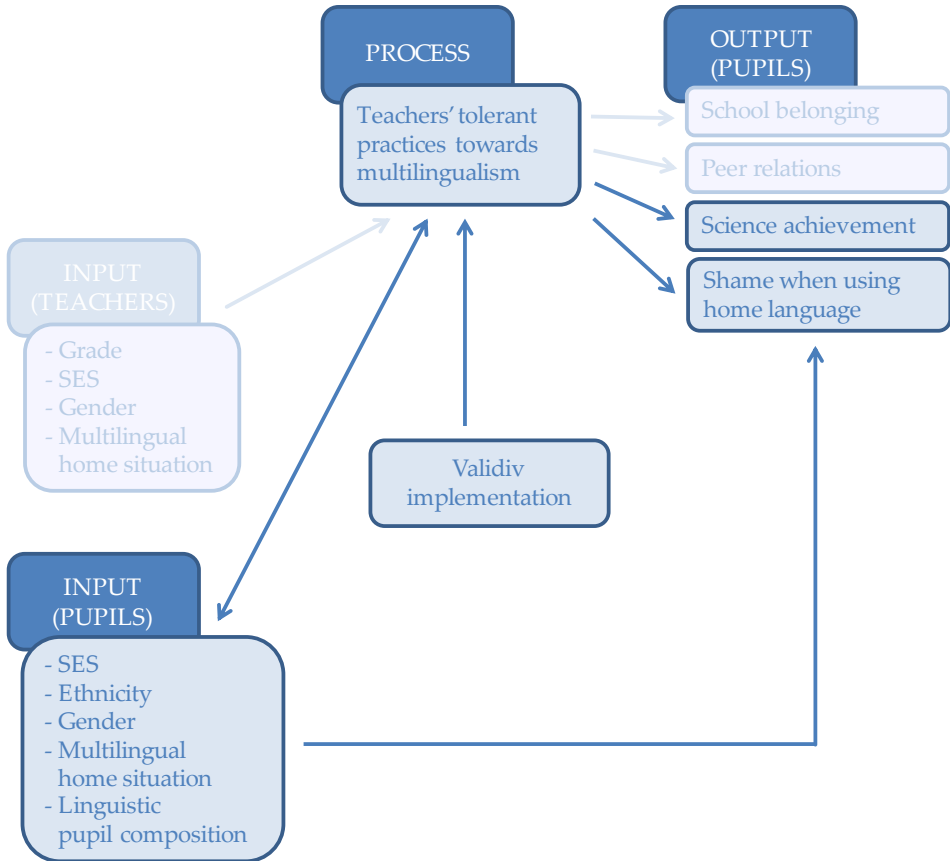
What this study shows is that it is possible to influence teachers' classroom behaviour with respect to multilingualism, however, before we can expect a change to happen, it is very important to fulfil certain basic prerequisites for the successful implementation of innovations.

**5. Recognizing linguistic diversity for learning:
What does it mean for pupils' science achievement and
feelings of shame?**

This chapter is under review for American Educational Research Journal.

ABSTRACT - This study evaluates an intervention aimed at welcoming all pupils' home languages in schools for their learning and well-being. The focus lies on changes in pupils' science achievement and feelings of shame in relation to using the home language. Data were collected from 865 language minority pupils from 60 primary schools in Flanders (Belgium). Whereas 29 schools were randomly assigned to the intervention condition, 31 schools acted as control schools. Pupils were followed during two school years (fourth-fifth grade). Neither science achievement nor feelings of shame were influenced by the intervention, which may be due to the implementation conditions of the intervention. However, feelings of shame were negatively related to science achievement. Implications for research and practice are discussed.

Figure 10: Aspects and relations in the operational model under focus in study 5



5.1. Introduction

Due to processes of migration and globalization, societies are becoming more diverse (Vertovec, 2007). Accordingly, schools are confronted with a large cultural and linguistic diversity among their pupil population, particularly in urban areas, with pupils bringing different linguistic repertoires into the classroom. While we define language majority pupils as those who have the same home language as the language of instruction (i.e., the dominant language used for instruction at school), language minority pupils are defined as those who also use languages at home other than the language of instruction.

Many international large-scale studies indicate that pupils who use another language at home run a considerably higher risk of underperformance in comparison to language majority pupils (e.g., Martin, Mullis, Foy, & Stance, 2012; OECD, 2010). This achievement gap between language minority and language majority pupils has not only been identified for literacy and numeracy (OECD, 2010), but also for science education (e.g., Bellens, Arkens, Van Damme, & Gielen, 2013). Having another home language than the language of instruction is often problematized as one of the key factors related to this achievement gap and, accordingly, indicated as an obstacle for successful school performance (Author, 2014a; Zuengler & Miller, 2006). Moreover, this achievement gap is used by policy makers as one of the arguments to justify a monolingual policy in education. As such, pupils are expected to attain a high level of proficiency in the national standard language as a condition to successfully participate in school, the labor market as well as society (Lanauze & Snow, 1989; Author, 2014a). Although there is room for foreign language education, this is reserved only for languages that are considered highly prestigious; most home languages of language minority pupils are not valued as a resource for learning and therefore excluded from the learning process (Agirdag, 2010; Author, 2011b; Helot & Young, 2002).

For language minority pupils, the confrontation with educational policies which ignore their multilingual background can have considerable consequences. On the one hand, it increases the possibility of internalizing negative beliefs about their home language and even feeling ashamed of it (Gogolin, 2002; Martínez-Roldán & Malavé, 2004; Author, 2014a). On the other hand, they are inhibited in making use of their home language as a support tool for their overall learning through the language of instruction (Agirdag, 2010; Author, 2015). As such, they miss out on learning opportunities. Nevertheless, there is evidence to suggest the effectiveness of the use of multilingual repertoires and bilingual education (August & Shanahan, 2006; Thomas & Collier, 2002; for a taxonomy, see García, Kleifgen, & Falchi, 2008).

Moreover, teachers who must work within the monolingual framework, as prescribed by educational policy makers, often hold the idea that the focus should exclusively lie on learning in and through the language of instruction (e.g., Kenner, Gregory, Ruby, & Al-Azami, 2008; Ramaut & Sierens, 2011; Van den Branden & Verhelst, 2011). They choose this immersion approach for different reasons: the belief that mastery in the language of instruction offers better chances for integration in society, the conviction that as much time as possible should be dedicated to the language of instruction, and the fear of losing control over the classroom practice should pupils use other languages (McLaughlin,

1992; Author, 2014a; Van den Branden & Verhelst, 2011). Furthermore, teachers seem to lack the necessary tools and competencies to cope with the complex linguistic diversity in their classroom practice (Clark, Touchman, Martinez-Garza, Ramirez-Marin, & Drews, 2012; Hélot, 2012; Author, 2014a).

A number of educational innovations that aim to integrate every pupil's linguistic repertoire in the school context have been scientifically monitored over the years (e.g., Maraillet, 2005; Saudan et al., 2005). Still, large-scale research on the purposeful use of linguistic diversity as a lever for both achievement and socio-emotional well-being is scarce (for an overview, see Author, 2014b). In this study, we evaluate the effectiveness of the Validiv-project (censored for review process), a research project that is targeted at welcoming all pupils' home languages at school and uses a large-scale quantitative methodology. The innovation consisted of the implementation of three experimental tools that affected the school as a whole: pupils used a multilingual computer-based learning environment (CBLE) in the domain of science education, teachers received a guide with inspiration on how to deploy pupils' diverse linguistic repertoires for learning in the classroom and schools were coached to set up a language policy trajectory in which linguistic diversity is positively approached. The purpose of this study is to examine whether pupils' achievement (i.e., science achievement) and well-being (i.e., feelings of shame when using their home language) were influenced by the innovation. Moreover, we study whether feelings of shame related to the use of the home language are a barrier for language minority pupils to employ their home language for learning.

5.2. Theoretical framework

5.2.1. Appealing to pupils' home languages as a lever for raising science achievement

According to Vygotsky (1978), language is one of the main symbolic tools children learn to master. It helps individuals to think about and make sense of the world surrounding them (Lantolf & Thorne, 2007; Storch & Aldosari, 2010; Vygotsky, 1978). Therefore, all forms of higher-order mental processing as well as the acquisition of complex skills are mediated by language (Guerrero & Villamil, 2000; Swain & Lapkin, 2000). As language minority pupils' home language is often the first language they learn, they need it as a cognitive tool to regulate their learning process in the language of instruction (Lantolf,

2000; Lantolf & Thorne, 2007; Swain & Lapkin, 2000; Vygotsky, 1978). In line with Cummins' (1979) linguistic interdependence hypothesis, a high level of competence developed in the home language can help in developing competence in the language of instruction and vice versa. A common underlying proficiency enables this transfer of knowledge, skills, and strategies across languages (Cummins, 1981). Science education is one of the most apparent contexts in which an extensive academic repertoire in the language of instruction is represented: the description of phenomena with a distinct vocabulary, conceptual reasoning, and a high level of abstraction are central in this area of education (Van den Branden, 2010). Therefore, science as a content area can provide a rich source of input for language minority pupils' learning process (Cummins, 1986).

Nevertheless, when language minority pupils' home language is excluded from their learning process, they cannot rely on it as a tool for learning. Baker (2011) even suggests that the ignorance of pupils' linguistic repertoire in their home language can be considered as one of the causes related to the aforementioned achievement gap. Moreover, programs in which the development of both the language of instruction and the home language are equally pursued have been shown to strengthen language minority pupils' academic achievement (August & Shanahan, 2006; Cheung & Slavin, 2012; García, 2009; Thomas & Collier, 2002). Nevertheless, the large variety in program implementations and different methodological shortcomings in research make it difficult to choose in favor of one approach (Author, 2014b; Van den Branden & Verhelst, 2011). Moreover, in classrooms composed of pupils with a broad array of home languages, traditional bilingual education programs become less feasible (Author, 2014b).

The notion of functional multilingual learning may be a promising pathway to benefit from the present linguistic diversity in the classroom (Author, 2014b). In this approach, every pupil's full linguistic repertoire is approached as a didactic resource and intentionally integrated in the learning process. As such, language minority pupils can employ the expertise already developed in their home language as a support tool to acquire knowledge that is currently beyond their level in the language of instruction (Jiménez, García, & Pearson, 1995, 1996; Kempert, Saalbach, & Hardy, 2011; Langer, Bartolome, Vasquez, & Lucas, 1990; Upton & Lee-Thompson, 2001). The teacher does not need to master every pupil's home language; he/she functions as a guide that supports both interactivity and feedback (Author, 2014b).

However, the surrounding context must be aligned with the idea of welcoming the whole linguistic repertoire of all pupils before an impact on achievement and well-being

can be expected. Therefore, functional multilingual learning should be embedded in a constructive language policy (Author, 2014b). Otherwise, language minority pupils may not feel inclined to appeal to their home language as a resource for learning (e.g., Becker, 1997; Lambert, 1973). Research has already shown that pupils may feel very reluctant to apply their home language (Gort, 2012; Storch & Aldosari, 2010; Storch & Wigglesworth, 2003). On the one hand, language minority pupils may have a very strong focus on the language of instruction within the school context, even when the use of the home language is promoted (Kenner et al., 2008; Storch & Wigglesworth, 2003). As such, it may not occur to them that they can also deploy their home language in the learning process. On the other hand, pupils need to be offered sufficient support and opportunities to access material in their home language, so that they can gain experience with it in a school context (Jiménez et al., 1996; Leider, Proctor, Silverman, & Harring, 2013). Otherwise they may only have little knowledge to transfer to the language of instruction.

These findings indicate that the context surrounding language minority pupils may strongly jeopardize the use of their home language as a support tool to accomplish tasks, and thus, to foster achievement. Therefore, the integration of pupils' home languages as a tool in the daily classroom practice may not be as easy as expected. As has been shown, pupils who feel reluctant to appeal to their home language for learning may have incorporated the monolingual view of policy makers and teachers. Feelings of shame related to language minority pupils' use of the home language might be a possible expression of internalized negative feelings with regard to their home language.

5.2.2. The stigmatization of pupils' home languages and its influences on language minority pupils

A person develops an image of him- or herself through interaction with others. As Cooley (1983) states, the self-image is built up in three steps: first, a person estimates how other people perceive him/her. Second, he/she assesses the evaluations other people may hold of him/her. Then, based on what he/she assumes others think about him/her, a self-image is constructed. However, this process of the construction of the self-image can also negatively alter someone's way of looking at themselves, resulting in stigmatization (e.g., Gilbert, 1998; Goffman, 1963; Hinshaw, 2007).

For example, language minority pupils develop their self-image to a great extent based on what they assume their peers, teachers, and the broader society think about them.

The educational policy, reflecting the monolingual norm which is generally accepted in society, puts a strong emphasis on high proficiency in the language of instruction as the only way to become successful in life and the related exclusion of other home languages (Author, 2008). However, this can lead language minority pupils to internalize the idea that their home language is an obstacle to their achievement (Agirdag, 2009; Van den Branden & Verhelst, 2011). As such, they can feel stigmatized for speaking another language at home.

Stigma refers to a “deep, shameful mark or flaw related to being a member of a group that is devalued by the societal mainstream” (Hinshaw, 2007, p. xi). Hence, stigmatization can have damaging consequences for the stigmatized individual, such as anxiety related to the characteristic being revealed, fear of being rejected by others or shame. Feelings of shame occur when people believe they cannot live up to personal and other people’s expectations (Gilbert, 1998). The stereotype threat theory states that people who belong to a group that is often negatively stereotyped might jeopardize their own performance due to the risk of confirming those stereotypes and the energy they invest in trying to compensate for those stereotypes (Steele, 1997; Steele & Aronson, 1995). When this theory is applied to language minority pupils, it may be that they feel stress in completing a test for fear that they might confirm the stereotype that language minority pupils achieve lower test scores.

Teachers who believe linguistic diversity to have negative effects on academic achievement can discourage the integration of language minority pupils’ home languages in the learning process through denying the importance of their home language for learning (Blommaert, Creve, & Willaert, 2006; Dooly, 2005; García, 2009; Gogolin, 2002). Hence, language minority pupils might internalize these widespread beliefs. For example, Agirdag (2010) has shown that pupils strongly prioritize the use of the language of instruction and believe it is in their own interest to abandon their home language at school. According to Agirdag (2010), this emphasis on the language of instruction by pupils is triggered by teachers’ monolingual beliefs. Similar results were found by Martínez-Roldán and Malavé (2004) in their case study of Steve, a seven-year-old Mexican American pupil. His perception of Spanish-speaking people was strongly influenced by the language restrictions imposed by his father, an immigrant from Mexico, who did not allow Steve to speak Spanish at home.

This may also explain why language minority pupils are reluctant to appeal to their home language in accomplishing tasks, as has been shown in the previous section: they

try to tackle their negative feelings of shame by avoiding the shameful behavior (Gilbert, 1998) and thus refraining from the use of their home language. In the understanding of Goffman (1963), speaking another language than the language of instruction at home is often seen as discreditable for a pupil. This means that the different home language is likely to be hidden (Goffman, 1963), for example, by not using it in the school context, even when it is allowed. However, for pupils being discouraged to perceive their home language as an asset, this can lead to missed learning opportunities (cf. *supra*).

5.2.3. Translating theory into practice through innovative education projects

Different initiatives have already been undertaken to include pupils' full linguistic repertoire in the mainstream school context, without the explicit aim of teaching new languages (e.g., Maraillet, 2005; Saudan et al., 2005). In general, two broad approaches can be distinguished. On the one hand, various projects focus on language awareness, which is intended to familiarize pupils with different languages in order to foster positive attitudes towards linguistically diverse societies (Blondin & Mattar, 2004; Fidler, 2006; Author, 2011a; Helot & Young, 2002). Teachers confirm that these kinds of projects stimulate pupils' curiosity towards languages and promote positive attitudes towards other cultures (Blondin & Mattar, 2004; Fidler, 2006). On the other hand, projects are emerging which are aimed at the intentional integration of pupils' home language in the learning process, mostly in combination with activities of language awareness (e.g., Bourne, 2001; Ramaut, Sierens, & Bultynck, 2013). These projects start from the idea of functional multilingual learning, in which pupils' whole linguistic repertoire is addressed as didactic capital and used as a tool for learning. These projects also indicate their power to influence teachers' beliefs and classroom practices. For example, by the end of the Home-Language-in-Education project, in which teachers were coached about how to encourage pupils to employ their home languages for learning, every teacher in the intervention schools allowed other languages in the classroom context (Author, 2013b).

5.2.4. Research aim

The purpose of this study is to evaluate an educational research project focused on appreciating pupils' home languages in order to enhance learning (cf. Methods section –

Research setting). First, we aim to examine whether the project initiated a change in language minority pupils' science achievement. Yet, monolingual teaching practices may affect pupils' perception of their home language as a didactic tool. Therefore, they may refrain from applying their multilingual repertoire for learning and miss out on learning opportunities. Some pupils may even become ashamed about using their home language. Thus, we also focus on changes in feelings of shame to use the home language due to the project. The following research questions guide the study:

1. Does a project aimed at integrating pupils' home languages in the school context influence pupils' science achievement?
2. Does a project aimed at integrating pupils' home languages in the school context influence pupils' feelings of shame towards using their home language?
3. Do feelings of shame towards using the home language mediate the relationship between the project and science achievement?

5.3. Method

5.3.1. Research context

This study is situated in Flanders, the northern part of Belgium. Dutch is the official language of instruction in the Flemish educational system; 14% of the primary school pupils enrolled speak a language at home that is different from Dutch (Agency for Internal Administration, 2015). In Brussels, Belgium's capital, more than half of the population uses at least two languages at home, with languages other than Dutch or French as strongly growing home languages (Janssens, 2013). For only 18% of pupils in the Dutch-speaking schools in Brussels, Dutch is the only home language (Verlot, Delrue, Extra, & Yagmur, 2003).

Notwithstanding the present linguistic diversity, Flanders is characterized by a long history of struggles for the recognition of Dutch as an official national language. Therefore, the importance of Dutch is strongly emphasized (Van Velthoven, 2011; Wils, 2009; Author, 2006). Moreover, proficiency in Dutch is believed to be an important aspect of being a member of Flanders (Van Velthoven, 2011; Wils, 2009; Author, 2013a). This ideology underlining the importance of Dutch also extends to the educational system (e.g., Blommaert et al., 2006).

5.3.2. Research project

The Validiv-project aims to intentionally employ every pupil's linguistic repertoire in the learning process as well as in the broader classroom and school context. As recommended in the school improvement literature (e.g., Hopkins, 2001), the Validiv-project is targeted at affecting schools at three levels, namely the individual level, the classroom context and the broader school environment. Therefore, the Validiv-team developed three tools, each with a focus on one particular level. First, E-Validiv (censored for review process) is a computer-based learning environment (CBLE) for pupils from fourth and fifth grade, offering a broad range of topics related to science. The CBLE has a multilingual character: all content can be accessed in the language of instruction (i.e., Dutch) and one of six other languages (i.e., English, French, Italian, Polish, Spanish or Turkish), through a language switch button. For language minority pupils who have their home language available in E-Validiv, the other language is set to that language. Second, a guide for teachers is provided with suggestions to positively address the present linguistic diversity during classroom activities. Teachers could choose how intensively they integrated the proposed activities in their classroom practice. Third, the School Policy Guide helps the school team to set up a language policy plan with a positive focus on linguistic diversity.

The introduction of the three Validiv-tools in the schools was supported by principles from school improvement research. Each school was assigned an external school coach to give support in the change process. The external school coaches assisted the schools as critical friends: they both supported and encouraged teacher teams to try out new things in their teaching (Stoll, Fink, & Earl, 2003). Moreover, schools differ in their readiness for reform. Therefore, they require different strategies in order to realize change (Slavin, 2005), with failing schools needing more external support than moderately effective schools or effective schools that want to remain effective (Hopkins & Harris, 1997). Hence, no universal formula with quick-fix solutions is available for schools to become more effective (Harris, 2002). Innovation processes are always complex and take a long time. Therefore, the schools followed a needs-based trajectory as much as possible (as recommended by Slavin, 2005; Stoll et al., 2003).

5.3.3. Sample

Data were collected from 865 language minority pupils (mean age = 11.33), their parents and their teachers in 60 primary schools as part of the Validiv-project. Pupils were followed during two school years, from the beginning of fourth grade until the end of

fifth grade. Multistage sampling was conducted to select the schools. First, from three selected regions with diverse linguistic populations (i.e., Brussels, Ghent, and Limburg), 214 primary schools were randomly selected and asked to participate; 31.30% of them agreed. The linguistic composition of the participating schools ranged from 1% to 100% language minority pupils. As the proportion of language minority pupils of the non-participating schools ($M=0.427$, $SD=0.281$) is not significantly different from that of the participating schools ($M=0.411$; $SD=0.291$) ($t(212)=0.382$, $p>.05$), we conclude that the non-response is not related to schools' linguistic composition.

Former research studying changes in educational projects has mainly chosen a qualitative approach, such as observations (Bourne, 2003; Maraillet, 2005; Author, 2013b), teachers' diaries (Fidler, 2006; Saudan et al., 2005), and interviews (Author, 2013b). Some projects also included quantitative analyses, but samples were mostly too small to provide sufficient statistical power for an analysis of school-level effects (e.g., Blondin & Mattar, 2004). Generally, no control schools or pretests were included (for an exception, see Author, 2013b). The present study aims to fill this gap by employing a large sample of intervention and control schools with a pre-posttest design.

5.3.4. Procedure

Of all the participating schools, 29 schools (468 language minority pupils) were randomly assigned to the intervention condition, whereas 31 schools (397 language minority pupils) acted as control schools. The intervention comprised the implementation of the three Validiv-tools. Before (i.e., pretest at time point 1: fall 2012) and after the intervention (i.e., posttest at time point 2: spring 2014), pupils completed a test consisting of three paper-and-pencil components: a science achievement test, a reading comprehension test, and a background questionnaire. At time point 2, a test on logical thinking was also administered. Furthermore, pupils' parents and all teachers from their schools filled in a paper-and-pencil questionnaire at time point 1.

All of the intervention schools participated in the pretest and the posttest, received access to the three experimental tools and were coached through the implementation process. In the control schools, pupils were only administered the pre- and posttest; no interventions were set up there. Only the data of language minority pupils who were present during both pre- and posttest were used for the analyses.

5.3.5. Measures

Table 15 gives an overview of the descriptive statistics for the different variables mentioned below. Table 16 and Table 17 report on the correlations for the level 1-variables and the level 2-variables respectively.

Table 15: Descriptive statistics for dependent and independent variables: frequencies (%), means, and standard deviations

Variables	Mean (SD), %	N
Pupil level		
Total time spent in E-Validiv (range: 1.22–647.87)	199.93 (110.37)	453
Pupil status in E-Validiv (ref.cat.: LMi pupils without match)	86.4% (match)	419
Proportion of time in OL in E-Validiv (range: .00-.97)	.25 (.23)	453
Science achievement TIME 1 (range: 6.00-31.00)	20.21 (4.78)	834
Reading comprehension (range: 1.00-20.00)	10.91 (4.64)	827
Logical thinking (range: 4.00-97.00)	46.58 (28.47)	863
Feelings of shame to use home language TIME 1 (ref.cat.: no)	41.8% (yes)	758
OLs used at playground (range: 1.00-5.00)	2.38 (1.24)	860
Self-reported proficiency language of instruction (range: 1.00-5.00)	4.26 (0.58)	825
Self-reported proficiency home language (range: 1.00-5.00)	4.11 (0.74)	800
Gender (ref.cat.: boy)	50.1% (girls)	835
Ethnic background (ref.cat.: Turkish descent)		813
Belgian descent	29.6%	
Moroccan descent	19.4%	
Other descent	27.9%	
Educational level mother (ref.cat.: continued education)		687
No primary education	2.9%	
Primary education	8.3%	
Lower secondary education	8.6%	
Higher secondary education	47.3%	
Feelings of shame to use home language TIME 2 (ref.cat.: no)	22.2% (yes)	818
Science achievement TIME 2 (range: 8.00-42.00)	24.88 (6.20)	865
School level		
Linguistic diversity (range: .00-.73)	.47 (.19)	59
Tolerant practices towards multilingualism (range: 1.31-4.38)	2.19 (0.65)	59
Teachers' teachability expectations (range: 2.92-4.03)	3.41 (0.28)	59
Intervention condition (ref.cat.: control schools)	48.3% (intervention)	60
Usage of Validiv-tools (range: 0.01-0.68)	0.24 (0.14)	27

Note: $p < 0.001 = ***$, $p < 0.01 = **$, $p < 0.05 = *$, $p < 0.1 = \circ$, SD = standard deviation, LMi = language minority; OL = other language

Table 16: Pearson's bivariate correlates for level 1 variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1														
2		1													
3			1												
4				1											
5					1										
6						1									
7							1								
8								1							
9									1						
10										1					
11											1				
12												1			
13													1		
14														1	
15															1

Note: $p < .001 = ***$, $p < .01 = **$, $p < .05 = *$, $p < .1 = \circ$, LMi = language minority; LOI = language of instruction; HL = home language

Matrix' column and row legenda

- | | | | |
|---|----------------------------------------------------------------|----|----------------------------------------------------------|
| 1 | Total time spent in E-Validiv | 9 | Self-reported proficiency LOI |
| 2 | Pupil status in E-Validiv (ref.cat.: LMi pupils without match) | 10 | Self-reported proficiency HL |
| 3 | Proportion of time in OL in E-Validiv | 11 | Gender (ref.cat.: boy) |
| 4 | Science achievement TIME 1 | 12 | Ethnic background (ref.cat.: Turkish descent) |
| 5 | Reading comprehension | 13 | Educational level mother (ref.cat.: continued education) |
| 6 | Logical thinking | 14 | Feelings of shame to use HL TIME 2 (ref.cat.: no) |
| 7 | Feelings of shame to use HL TIME 1 (ref.cat.: no) | 15 | Science achievement TIME 2 |
| 8 | OLs used at playground | | |

Table 17: Pearson's bivariate correlates for level 2 variables

	1	2	3	4	5
1 Linguistic diversity	1				
2 Tolerant practices towards multilingualism	.334**	1			
3 Teachers' teachability expectations	-.387**	-.002	1		
4 Intervention condition (ref.cat.: control schools)	.234**	.240**	-.024	1	
5 Usage of Validiv-tools	.392**	.109*	-.231**	---	1

Note: $p < 0.001 = ***$, $p < 0.01 = **$, $p < 0.05 = *$, $p < 0.1 = \circ$

Dependent variables - With regard to science achievement, pupils filled out a test at time point 2, consisting of 46 items with a multiple-choice format. The items were based on the released 2011 science items in Dutch from The International Mathematics and Science Study (TIMSS) (Bellens, Gielen, Belfi, & Van Damme, 2012). Pupils received one point for a correct answer and zero points for an incorrect answer, with a maximum score of 46 points. Pupils scored on average 24.88 on the test with a standard deviation of 6.20.

Pupils' feelings of shame in using their home language was also measured at time point 2 with the item "I feel ashamed when I use the language I use at home on the playground." The answers ranged from 1 (=never) to 5 (=very often) on a 5-point Likert scale. Since this variable had a very skewed distribution, it was transformed into a dichotomous variable, with scores 1 and 2 grouped into a category of pupils who are not or not much affected by feelings of shame and scores 3 to 5 grouped into a category of pupils who do experience shame. This categorization shows that 22.2% of the pupils feel ashamed when using their home language, while 77.8% do not or only rarely experience this.

Pupil level variables: Intensity of the Validiv-project - Since the factors related to the intensity of the Validiv-project were only applicable to pupils in schools in the intervention condition, the descriptive statistics with regard to the intervention condition were only calculated for these pupils. The total amount of time spent in E-Validiv over the course of the intervention indicates the time-on-task, which is considered an important predictor of learning (Snow, 1990). In our sample, pupils spent on average 199.93 minutes on E-Validiv with a standard deviation of 110.37 minutes. This was determined through logfiles from a system running in the background of E-Validiv, which saved all relevant activities. The time spent in the other language was

determined in a similar way. For reasons of interpretation, this variable is set to proportions. On average, pupils spent 25.00% of the time on E-Validiv in the other language with a standard deviation of 23.00%.

For pupils' status in E-Validiv (i.e., whether there is a match between their home language and the other language or not), language minority pupils were first identified as pupils indicating that they sometimes speak another language with at least one of their parents. Next, they were asked which language they speak at home with their parents. This was linked to the language available to them in E-Validiv. If pupils indicated the same language as the one available to them in E-Validiv, they were considered as having a match between their home language and the language in E-Validiv. Pupils indicating another language were regarded as not having a match. In our sample, 86.4% of the pupils had a match between their home language and the language in E-Validiv.

Pupil level variables: Specific control variables for the analysis of pupils' science achievement - To control for initial science achievement, the results from the science achievement test administered at time point 1 were used. This test consisted of 34 multiple-choice items, based on the released 2003 TIMSS science items in Dutch (Brusselmans-Dehairs & Valcke, 2004). On average, pupils scored 20.21 points on a total of 34 points with a standard deviation of 4.78.

For reading comprehension, a test was administered at time point 1, based on the reading comprehension test for third grade pupils from the Institute for Test Development (Cito) in the Netherlands (Staphorsius & Krom, 1998). The test consisted of 20 questions about three narrative texts. Pupils scored on average 10.91 points on a total of 20 points with a standard deviation of 4.64.

Logical thinking was measured by means of the nonverbal Raven Standard Progressive Matrices (Raven, Raven, & Court, 2003) at time point 2. Pupils had to recognize patterns in 60 different puzzles. The total sum score was transferred to a percentile score on the basis of norm tables. The average percentile score on this test was 46.58 with a standard deviation of 28.47.

Pupil level variables: Specific control variables for the analysis of feelings of shame when using the home language - To control for initial feelings of shame, pupils were asked at time point 1 if they felt ashamed about using their home language on the playground, with answers ranging from 1 (= never) to 5 (= very often) on a 5-point Likert

scale. This measure was recoded into a dummy variable, with the reference category indicating that pupils do not experience feelings of shame with regard to their home language and the other category indicating the presence of feelings of shame when using the home language. We found that 41.8% of pupils reported feelings of shame and 58.2% of pupils reported that they did not experience shame with regard to their home language.

Since pupils who make use of different languages on the playground might have more occasion to feel ashamed about their home language than pupils only using Dutch, we control for pupils' language use on the playground. Therefore, we asked which language pupils use on the playground on a 5-point Likert scale (1 = always Dutch; 5 = always another language). The average on this measure was 2.38 with a standard deviation of 1.24, indicating that most language minority pupils use both languages to some extent on the playground.

To measure pupils' self-reported proficiency in the language of instruction, they were asked about the extent to which they can understand, speak, read, and write in the language of instruction on a 5-point Likert scale (1 = very poor; 5 = very strong). A mean score of the four skills was calculated. The pupils in our sample had an average score of 4.26 on this measure with a standard deviation of 0.58, indicating that they are rather confident about their overall proficiency in Dutch. The same procedure was performed to measure pupils' self-reported proficiency in their home language. On this measure, pupils scored 4.11 with a standard deviation of 0.74.

Pupil level variables: General control variables - Data concerning pupil gender (boy=0, girl=1), ethnic background, and educational level of the pupil's mother are also included. The data with regard to gender and ethnic background were derived from the pupil questionnaire. Concerning gender, our sample consisted of 50.1% girls and 49.9% boys. Pupils' ethnic background was determined by looking at the birthplace of the grandmothers; if this was missing, the parents' birthplace was used (Jacobs, Swyngedouw, Hanquinet, & Vandezande, 2006). For this study, we included four categories: Belgian descent (29.60%), Turkish descent (reference category, 23.00%), Moroccan descent (19.40%), and a category clustering pupils from any other descent (27.90%). The educational level of the pupil's mother was retrieved from the parents' questionnaire and had five categories: no primary education (2.90%), primary education (8.30%), lower secondary education (8.60%), higher secondary education (47.30%) and continued education (reference category, 32.90%).

School level variables: Starting situation of schools before Validiv-implementation -

The measure for linguistic diversity at school is expressed as the total number of linguistic groups present at school, corrected by their size. It was measured at time point 1 by means of the inverse Herfindahl index: $-1 \times [(proportion\ linguistic\ group\ 1)^2 + (proportion\ linguistic\ group\ 2)^2 + \dots + proportion\ linguistic\ group\ n)^2] + 1$ (Dronkers & van der Velden, 2010; Putnam, 2007). When pupils indicated the usage of other languages than Dutch at school, they were assigned to the linguistic group of the other language which they felt most proficient in. Values for this index range from 0 to 1, with a value of 0 indicating that only one language is used at school; this could be Dutch or any other language. A value of 1 indicates that every pupil in the school uses a different language. For our sample, schools had an average score of .47 with a standard deviation of .19.

Tolerant practices toward multilingualism were measured at time point 1 via the teacher questionnaire through 4 items on a 5-point Likert scale (1 = never; 5 = very often) (Cronbach's $\alpha=.86$). The items ask whether pupils would be allowed to use another language than Dutch (1) to explain something to a peer, (2) during group work, (3) in the classroom, and (4) on the playground. No important social desirability bias exists for this measure, as the teachers' reported tolerant practices correlate strongly with the pupils' perceived tolerant practices ($r = .65, p<.01$). The intraclass correlation coefficient (ICC, based on a one-way ANOVA and calculated as $(Between\ Mean\ Square - Within\ Mean\ Square)/Between\ Mean\ Square$) was .91, which legitimizes aggregation to the school level by calculating the mean of the teacher measure (Glick, 1985; Shrout & Fleiss, 1979). Scores ranged from 1 to 5, with high scores implying that teachers in school tolerate multilingualism strongly. On average, schools scored 2.19 on this measure with a standard deviation of 0.65.

The teachers' perception of pupils' teachability was measured at time point 1 through an aggregate measure of the Teachable Pupil Survey (Kornblau, 1982), as incorporated in the teacher questionnaire. The survey consists of 31 items on a 5-point Likert scale (1 = totally disagree; 5 = totally agree) (e.g., 'I think the pupils in this school follow directions'). As the ICC for the schools' teachability expectations in the present study was .92, the teachability expectations measured at the teacher level could be aggregated at the school level (Glick, 1985; Shrout & Fleiss, 1979). On average, schools scored 3.41 on this measure with a standard deviation of 0.28.

School level variables: Intensity of the Validiv-project - Whether the school was part of the intervention or control condition was indicated by a dummy variable, with a value of 0 indicating that the school was in the control condition and a value of 1 indicating that the school was part of the intervention condition. For our study, 29 schools functioned as intervention schools and 31 as control schools.

As a general indicator of the intensity of the Validiv-project, we included a measure indicating how often a school team used the Validiv-tools. Therefore, each teacher indicated his/her usage of each of the three Validiv-tools using a scale from 1 (not used) to 4 (regularly used). As such, low values indicated a low use, while higher values indicated a more regular use of the Validiv-tools. For every teacher, an average score was computed and those averages were recalculated to a scale ranging from 0 (low usage) to 1 (high usage). In the last step, we aggregated the scores of the teachers to the school level by calculating the mean score for each school. On average, schools scored .24 with a standard deviation of .14.

5.3.6. Data analysis

Multilevel modeling based on hierarchical regression (MLwiN 2.31) was used for the analyses on science achievement because of the hierarchical structure of the data: 865 pupils (level 1) are nested within 60 schools (level 2). For the analyses on feelings of shame related to using the home language, multilevel modeling based on binomial logistic regression was applied. The models for both dependent variables are built up in a similar order. Table 18 gives an overview.

Table 18: Building up the stepwise models for both dependent variables

	Science Education Scores	Feelings of shame when using home language at playground
Model 0	Unconditional model	
Model 1	Starting condition of schools before Validiv implementation	
	Linguistic diversity Tolerant practices towards multilingualism Teachers' teachability expectations	Linguistic diversity Tolerant practices towards multilingualism
Model 2	Intensity of the Validiv project	
	Intervention condition Usage of Validiv-tools Total time spent in E-Validiv Pupil status in E-Validiv Proportion of time in other language in E-Validiv	Intervention condition Usage of Validiv-tools Total time spent in E-Validiv Pupil status in E-Validiv Proportion of time in other language in E-Validiv
Model 3	Specific control variables	
	Feelings of shame to use home language (TIME 2)	Self-reported proficiency language of instruction Self-reported proficiency home language
Model 4	General control variables	Specific control variables
	Educational level mother Gender Ethnic background	Feelings of shame to use home language (TIME 1) Other languages used at playground
Model 5	Specific control variables	General control variables
	Science achievement TIME 1 Reading comprehension Logical thinking	Educational level mother Gender Ethnic background

Model 0 - For both dependent variables, we started with the unconditional model to determine the amount of variance in the dependent variable situated at the school level.

Model 1 - We then included the variables describing the schools' starting situation before the intervention. In this way, we avoided biased effects because of potential selective inclusion of schools in the control or intervention condition. The linguistic diversity of a school was included in the analysis on science education scores, since a school's composition has been found to influence pupils' academic achievement (Bellens et al., 2013; Martin et al., 2012). For the dependent variable of shame, the linguistic diversity at school was also important since people tend to be more ashamed of features that are less common in a population (Gilbert, 1998). Teachers' tolerant practices were incorporated in the analysis because pupils are found to be responsive to teachers' opinions about their languages and tend to adopt these opinions (Goriot, Denessen, Bakker, & Droop, 2015). This might lead to more intense feelings of shame in contexts where multilingualism is approached negatively and, as a consequence, bring pupils to make less use of their home languages and jeopardize their learning. Additionally, teachers' teachability expectations were included in the analysis on science education scores since these are found to relate to achievement (Jussim & Harber, 2005).

Model 2 - In the next step, we integrated the variables related to the Validiv-intervention. First, the variable indicating whether a school was in the intervention or control condition was included. Then, four conditionally relevant variables were added in order to include the variables that are only relevant for pupils in intervention schools (for a detailed description of this technique, see Ross & Mirowsky, 1992). At the school level, the intensity of the use of the Validiv-tools was integrated, since we cannot assume that the intervention was implemented with the same intensity in all schools (Hopkins, 2001). At the pupil level, three variables concerning pupils' use of E-Validiv were included: the total amount of time spent in E-Validiv (Snow, 1990), the proportion of time spent in the other language and pupils' status in E-Validiv (Author, 2014b).

Model 3 - We integrated specific control variables that differed for both outcome variables. For the analysis of science scores, we included feelings of shame at time point 2. Hence, it could be tested whether the non-cognitive feelings of pupils are related to their cognitive outcomes, as has been found in previous research (e.g., Goodenow, 1993 for school belonging).

For the analysis on feelings of shame, the measures of self-reported proficiency in Dutch and pupils' home language were added. On the one hand, it might be that pupils feel

that using their home language is less shameful if they have a higher proficiency in their home language, since there is no need to feel ashamed when they feel confident in their home language. On the other hand, they might feel less ashamed when using their home language if their proficiency in Dutch is strong. Pupils who show a strong proficiency in Dutch might feel less threatened by the stereotype of pupils with a different home language than Dutch, lacking proficiency in Dutch (Steele, 1997; Steele & Aronson, 1995).

Model 4 - After that, we controlled for feelings of shame at time point 1 for the analysis on feelings of shame in relation to using the home language. Whether pupils speak different languages on the playground was also taken into account, since pupils who use other languages may have more occasion to feel ashamed about their home language.

For science achievement, we included three general control variables: gender, ethnic background, and educational level of the pupil's mother. With regard to gender, previous research has shown that boys tend to attain higher scores in science than girls (e.g., Maerten-Rivera et al., 2010). Likewise, pupils' ethnic background has been found to affect their achievement (e.g., Author, 2012a on maths achievement). Non-native pupils and pupils from families with a low social background tend to fall behind more than others (e.g., Bellens & De Fraine, 2012). With regard to the latter, the educational level of the pupil's mother was taken into account as an indication of pupils' social background. This can give additional explanation in analyses on achievement (August & Shanahan, 2006).

Model 5 - The same general control variables were included for the analysis of feelings of shame in model 5. With regard to gender, females have been found to cope with negative feelings in different ways to males (Piccinelli & Wilkinson, 2000). Likewise, pupils' ethnic background has been found to affect their feelings about themselves (Author, 2012b on pupils' self-esteem). The educational level of the pupil's mother was taken into account as an indication of pupils' social background. This can give additional explanation in analyses on variables related to pupils' linguistic background (Van der Slik, Driessen, & De Bot, 2006).

For science education, we finished the analyses by including a measure of science achievement at time point 1 (Martin et al., 2012), pupils' reading comprehension in the language of instruction (O'Reilly & McNamara, 2007; Taboada, 2012), and logical thinking (August & Shanahan, 2006).

5.4. Results

5.4.1. The Validiv-project and science education scores

The results on the impact of the Validiv-project on pupils' science achievement can be found in Table 19. The unconditional model of the multilevel linear regression indicated that 22.3% of the variance was located at school level ($\sigma^2_{u0}=8.820$, $\chi^2=17.641$, $df=1$, $p<.001$). Therefore, we continued using a multilevel model to control for the nested structure of our data and to estimate the effects of school-level characteristics.

The indicators about the implementation of the Validiv-project on the school level remained non-significant throughout the different models. Concerning the variables related to the use of E-Validiv on the pupil level, the results indicated that the total time spent in E-Validiv had a positive effect on the score for the science achievement test ($\chi^2=12.995$, $df=1$, $p<.001$). However, when including the cognitive control variables, this effect dropped to a non-significant level ($\chi^2=1.289$, $df=1$, $p>.05$). The disappearance of this effect might be explained by the correlation between the time spent in E-Validiv and the cognitive control variables ($r=.241$, $p<.01$ for general cognitive ability; $r=.224$, $p<.01$ for the science achievement test at time point 1; $r=.248$, $p<.01$ for reading comprehension). Whether pupils' home languages matched the other language in E-Validiv ($\chi^2=2.006$, $df=1$, $p>.05$) or the amount of time spent in the other language ($\chi^2=2.171$, $df=1$, $p>.05$) was not related to pupils' performance on the science achievement test either. This indicates that the Validiv-project did not impact science education scores and therefore the answer to our first research question is negative.

Table 19: Association between *Validio*-project and science achievement scores ($n=538$)

	Single level	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Fixed part</i>							
Intercept (cons)	24.879(0.211)***	25.210(0.440)***	24.943(0.267)***	24.983(0.388)***	25.339(0.414)***	26.737(0.826)***	25.791(0.651)***
School level							
Linguistic diversity		-6.012(1.620)***	-6.613(1.660)***	-6.678(1.710)***	-6.869(1.758)***	-5.989(1.327)***	
Tolerant practices towards multilingualism		-0.833(0.451) ^o	-0.537(0.480)	-0.514(0.486)	-0.523(0.500)	0.072(0.378)	
Teachers' teachability expectations		5.713(1.065)***	5.274(1.145)***	4.763(1.164)***	2.991(1.258)*	-0.305(0.961)	
Intervention condition (ref.cat.: control schools)			-1.566(1.290)	-1.282(1.307)	-2.387(1.372) ^o	-0.833(1.065)	
Usage of Validiv tools			-1.603(2.622)	-2.076(2.648)	-0.779(2.599)	1.258(1.958)	
Pupil level							
Total time spent in E-Validiv			0.011(0.003)***	0.010(0.003)***	0.012(0.003)***	0.003(0.003)	
Pupil status in E-Validiv (ref.cat.: LMi pupils without match)			-1.235(0.872)	-1.276(0.893)	-0.730(0.996)	-0.787(0.797)	
Proportion of time in OL in E-Validiv			2.028(1.377)	2.110(1.376)	0.865(1.416)	0.932(1.116)	
Feelings of shame to use HL TIME 2 (ref.cat.: no)				-1.975(0.517)***	-2.501(0.569)***	-1.385(0.457)**	
Educational level mother (ref. cat.: continued education)							
No primary education						-3.135(1.393)*	0.205(1.112)
Primary education						-2.269(0.948)*	-0.133(0.756)
Lower secondary education						-2.701(0.912)**	-0.247(0.736)
Higher secondary education						-1.944(0.585)***	-0.585(0.470)
Gender (ref.cat.: boy)						-1.134(0.458)*	-1.076(0.369)**
Ethnic background (ref.cat.: Turkish)							
Belgian descent						1.112(0.682)	0.359(0.543)
Moroccan descent						0.550(0.753)	-0.070(0.593)
Other descent						2.521(0.697)***	1.421(0.554)*
Science achievement TIME 1							
Reading comprehension							0.407(0.050)***
Logical thinking							0.299(0.051)***
							0.059(0.007)***

Table 19 (continued): Association between Validity-project and science achievement scores ($n=538$)

	Single level	Model 0	Model 1	Model 2	Model 3
Random part					
School level σ^2_{ω} (between)		8.820(2.100)**	1.687(0.733)	1.414(0.723)	1.459(0.747)
Pupil level σ^2_{ω} (within)	38.410***	30.697(1.529)***	30.922(1.549)***	30.358(1.639)***	29.964(1.664)***
Model fit					
Deviance (-2LL)	5610.548	5508.462	5361.343	4619.844	4372.916
χ^2		102.086	147.119	741.499	246.928
df		1	3	5	1
p		***	***	***	***
Reference model		Single level	Model 0	Model 1	Model 2
Variance at level 2					
q (%)		22.3%	5.2%	4.5%	4.6%

Note: $p < 0.001 = ***$, $p < 0.01 = **$, $p < 0.05 = *$, $p < 0.1 = \circ$, values in parentheses are standard errors, OL = other language, HL = home language

5.4.2. The Validiv-project and feelings of shame when using the home language

Table 20 gives an overview of the results on the effect of the Validiv-project on feelings of shame with regard to using the home language. The original logit values for the regression coefficients were transformed to odds ratios. The unconditional model of the multilevel logistic regression indicated that 13.6% of the variance is located at school level. Although this variance was not significant ($\sigma^2_{u0}=0.157$, $\chi^2=2.234$, $df=1$, $p>.05$), we nevertheless opted for multilevel analysis in order to integrate the conditionally relevant variables.

When looking at the implementation of the Validiv-project at the school level, language minority pupils in intervention schools had more chance to feel ashamed for the use of their home language than pupils in control schools ($\chi^2=4.267$, $df=1$, $p<.05$). However, the intensity of the use of the Validiv-tools shows that in schools where the Validiv-tools were used more often, pupils felt less ashamed than in other schools. However, this effect was only borderline significant ($\chi^2=2.861$, $df=1$, $p<.1$) and disappeared in the next step. The effect of the intervention condition remained positive until the last step, at which stage it also disappeared ($\chi^2=1.988$, $df=1$, $p>.05$).

Pupils' individual use of E-Validiv did not seem to be related to feelings of shame: only the total time spent in E-Validiv showed an unsubstantial negative effect on feelings of shame ($\chi^2=3.099$, $df=1$, $p<.1$), which disappeared in the final model ($\chi^2=0.742$, $df=1$, $p>.05$).

In the final model, no significant effects of the Validiv-project remained. Therefore, the answer to the second research question is negative and we conclude that the Validiv-project did not influence pupils' feelings of shame when using their home language on the playground. Nevertheless, we did find a significant negative effect for the self-reported proficiency in Dutch: pupils who believed they had a low proficiency in Dutch, the language of instruction, had more chance to feel ashamed when using their home language on the playground ($\chi^2=15.025$, $df=1$, $p<.001$). High feelings of shame at the first time point also predicted high feelings of shame at the second time point ($\chi^2=16.394$, $df=1$, $p<.001$). The language used on the playground did not affect feelings of shame when using the home language on the playground ($\chi^2=1.468$, $df=1$, $p>.05$).

Table 20: Association between Validiv-project and feelings of shame when using home languages at the playground with odds ratios (n=490)

	Single level	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5
Fixed part							
Intercept(cons)	0.286(0.084)***	0.278(0.102)***	0.281(0.101)***	0.288(0.153)***	0.266(0.158)***	0.186(0.183)***	0.176(0.417)**
School level							
Linguistic diversity			1.725(0.568)	2.0843(0.656)	2.361(0.672)	2.096(0.662)	1.510(0.782)
Tolerant practices towards multilingualism			1.070(0.164)	1.087(0.182)	1.045(0.181)	1.091(0.168)	1.092(0.213)
Intervention condition (ref.cat.: control schools)				3.165(0.558)*	3.353(0.569)*	3.655(0.562)*	2.581(0.672)
Usage of Validiv tools				0.132(1.199) ^o	0.180(1.178)	0.213(1.116)	0.125(1.347)
Pupil level							
Total time spent in E-Validiv				0.998(0.001)*	0.997(0.001)**	0.997(0.001)**	0.999(0.002)
Pupil status in E-Validiv (ref. cat.: <i>LMI pupils without match</i>)				0.725(0.378)	0.764(0.393)	0.703(0.409)	0.650(0.507)
Proportion of time in OL in E-Validiv				0.943(0.600)	0.743(0.617)	0.745(0.627)	0.708(0.702)
Self-reported proficiency LOI					0.526(0.166)***	0.543(0.170)***	0.495(0.203)***
Self-reported proficiency HL					1.045(0.138)	1.005(0.140)	1.244(0.167)
Feelings of shame to use HL TIME 1						2.270(0.203)***	2.514(0.244)***
OLs used at playground						0.896(0.091)	0.845(0.111)
Educational level mother (ref.cat.: continued education)							
No primary education							0.684(0.644)
Primary education							0.301(0.615) ^o
Lower secondary education							1.155(0.431)
Higher secondary education							0.919(0.290)
Gender (ref.cat.: boy)							0.698(0.242)
Ethnic background (ref.cat.: Turkish)							
Belgian descent							1.164(0.373)
Moroccan descent							2.307(0.371)*
Other descent							1.627(0.355)

Table 20 (continued): Association between Validio-project and feelings of shame when using home languages at the playground with odds ratios (n=490)

	Single level	Model 0	Model 1	Model 2
<i>Random part</i>				
School level σ^2_{ω} (between)		0.157(0.105)	0.134(0.100)	0.117(0.107)
Pupil level σ^2_{ϵ} (within)	1.000(0.000)	1.000(0.000)	1.000(0.000)	1.000(0.000)
<i>Variance at level 2</i>				
q (%)		13.6%	11.8%	10.5%

Note: $p < 0.001 = ***$, $p < 0.01 = **$, $p < 0.05 = *$, $p < 0.1 = \circ$, values in parentheses are standard errors, OL = other language, LOI = language of instruction, HL = home language

5.4.3. Mediation of the Validiv-project and science achievement

We did not find any effect of the Validiv-project on pupils' science achievement. Therefore, it was not possible to answer the third research question affirmatively. However, a negative effect of feelings of shame when using the home language on the playground was found for the score on the science achievement test ($\chi^2=14.594$, $df=1$, $p<.001$): pupils who felt ashamed about using their home language on the playground tended to score lower on the science achievement test. This effect remained significant, even after controlling for demographic background variables and cognitive ability ($\chi^2=9.183$, $df=1$, $p<.01$).

5.5. Discussion and conclusion

Today's schools are characterized by a large linguistic diversity, particularly in urban settings. Moreover, language minority pupils face more challenges in attaining the same level of academic achievement in comparison to language majority pupils for language, mathematics as well as science education (Van Laere et.al., 2014). According to public opinion, using a different language at home than the language of instruction is one of the main barriers for language minority pupils' achievement. As a consequence, the focus in schools exclusively lies on learning in and through the language of instruction (Ramaut & Sierens, 2011; Van den Branden & Verhelst, 2011). Nevertheless, language minority pupils' home language can also be considered as an asset in the classroom practice and integrated as a support tool for their learning process (Sierens & Van Avermaet, 2014). Therefore, the Validiv-project aimed to welcome all pupils' home languages at school, thereby fostering both cognitive and non-cognitive outcomes. In this study, the effectiveness of the Validiv-project on both language minority pupils' science achievement and feelings of shame towards using their home language was examined. Additionally, we studied whether feelings of shame mediate the relationship between the Validiv-project and science achievement.

With regard to the first research question about the impact of the Validiv-project on science achievement, we conclude that the project did not produce any significant changes on pupils' performance. A possible explanation for this is that schools did not apply the Validiv-tools, such as the CBLE E-Validiv, in a thorough way. Accordingly, the tools might not have been integrated comprehensively enough in both the classroom practice and the broader school environment to produce a learning effect on science

achievement, as school improvement research suggests the importance of innovating both classroom and school levels (Hopkins, 2001). On the other hand, it might be that the innovative practice of allowing pupils' home language in the school context is adapted to the daily school routine in such a way that the innovation loses its potential strength (Illich, 1970). This might explain why the anticipated advantages of welcoming pupils' multilingualism at school do not clearly show.

A closer look at the analyses shows that the total time spent in E-Validiv indeed leads to a significant improvement in language minority pupils' science achievement, but only until the factors with regard to learning achievement are integrated. The external coaches, who were responsible for the valorization of the different Validiv-tools, offered a possible explanation for this finding. They noticed that particularly pupils who finished their regular classwork sooner than their classmates could work on E-Validiv as a way of differentiation. This might explain why pupils with stronger achievement scores spent more time on E-Validiv. However, more research is needed to unravel these relationships.

The finding that it does not play a role for science achievement whether language minority pupils have their home language available in E-Validiv or dedicate a lot of time to their home language indicates that these pupils may not yet fully appeal to their home language as a support tool for their learning process (Clark et al., 2012; Jiménez et al., 1996). Again, this may be partly explained by the low intensity of E-Validiv use in general. Pupils need a safe environment and sufficient time to ensure that learning occurs (e.g., Solis, Miciak, Vaughn, & Fletcher, 2014), and teachers need support in order to move through a process of change and professional development (Harris, 2002). However, the finding also indicates that giving room to other languages in general, and language minority pupils' home languages in particular, does not do any harm to pupils' science achievement.

Regarding the impact of the Validiv-project on pupils' feelings of shame towards using their home language, the findings equally show that neither the use of the tools at school level nor the specific use of E-Validiv by the pupils play a role in changing shameful feelings about the home language once the control variables are integrated. For example, pupils seem to be less likely to feel ashamed of using their home language when they spend more time on E-Validiv until their background characteristics are taken into account. Furthermore, feelings of shame with regard to using the home language do not play a significant role in the effectiveness of the Validiv-project on science achievement.

However, shame with regard to using the home language is in itself significantly and negatively related to science achievement: the more language minority pupils feel ashamed about using their home language, the weaker they perform on science subjects. As such, language minority pupils who feel ashamed about using their home language face a great challenge in attaining a sufficient level in their science achievement. Their feelings of shame might pose an obstacle to their achievement. Moreover, language minority pupils who believe they have a low proficiency in the language of instruction are even more likely to feel ashamed when using their home language. This might be due to the fact that the home language is often seen as the cause of academic failure in general and in the language of instruction in particular, as has been expressed by teachers (Van den Branden & Verhelst, 2011) and even pupils (Agirdag, 2010).

We conclude that the Validiv-project has not yet made a significant contribution to changing language minority pupils' science achievement and feelings of shame in a positive way. Different reasons can be put forward for this. First, a more thorough implementation trajectory of such a large-scale project is probably needed to produce observable and positive results (cf. Corcoll, 2013; Snow, 1990; Yeung, Marsh, & Suliman, 2000). Related to this, more intensive investment is needed in the professionalization of teachers and school leaders. Teachers' mindsets towards innovations are considered crucial for the implementation process to succeed (Fullan, 2001). However, time and human resources lacked in the Validiv-project, which could have provided teachers with the support and encouragement they needed to successfully make changes in their everyday teaching practice (Stoll et al., 2003). For example, there were only three part-time external coaches for 29 different schools. As a consequence, there was a rather weak and incoherent implementation of the Validiv-tools (cf. Gersten & Baker, 2000; Yeung et al., 2000). Through focusing on this professionalization (August, Branum-Martin, Cardenas-Hagan, & Francis, 2009; Cheung & Slavin, 2012), a strong vision on how linguistic diversity in schools can be approached in a positive way should have been developed, supported and sustained by the teachers in a safe environment, such that they could take ownership in integrating the core ideas of the project into the classroom practice (Harris, 2002).

This study also has different limitations, which can be considered in further research. For example, the science achievement test has been administered in the language of instruction only. This may have limited pupils' ability to demonstrate their competence (Collier, 1992; Lee, 1986). Tests in pupils' home language could have given another picture. However, in the context of the present study, this was not possible because of

the large linguistic diversity in our sample and the lack of comparable tests of sufficient quality for the different languages. Furthermore, no judgments can be made about causal relationships as our data were not collected in the context of a longitudinal design. Additionally, the use of qualitative data (e.g., interviews, observations,...) can help in enriching the findings of this study.

In sum, the Validiv-project can be considered as an important step forward in welcoming every pupil's full linguistic repertoire in the field of education. Although it has not resulted in observable changes in language minority pupils with regard to both their science achievement and their feelings of shame in using their home language, it has contributed to insights into the possible obstacles as well as levers to successfully implement large-scale educational interventions in general, and projects aimed at valorizing multilingualism in particular. Giving more attention to language awareness for all pupils and to language minority pupils' home language as a support tool in their learning process should be given more consideration in future long-term projects. Furthermore, more investment should be made in both a general policy, a school vision, and classroom practices in which multilingualism is considered as an asset instead of a burden.

Part 3

Conclusion and discussion

1. Main findings and contributions

Schools all over the world, experience how migration flows change their pupil populations (Byrnes, Kiger, & Manning, 1997; Gogolin, 2002). Pupils bring a wide variety of home languages to the school context and teachers do not know how to handle the multilingualism in their classrooms (Agirdag, 2009; McLaughlin, 1992). They tend to resort to common sense and mainstream ideologies in order to tackle the challenges that rise as a result of linguistic diversity (Pulinx et al., 2016). For instance, many teachers believe a language is best acquired without the support of another language and languages are best kept separate (Cummins, 2008b). This results in teaching practices that only focus on the acquisition of the dominant language and do not leave space for pupils' home languages (Gogolin, 2002). When looking at sociolinguistic research on multilingualism in education, however, such monolingual practices are not recommended. This field of research has shown how multilingual pupils use their home languages for learning *and* as a part of their identity (Busch, 2010; Rampton, 1995).

Earlier sociolinguistic research on multilingualism in education demonstrated via small scale qualitative research how teachers handle linguistic diversity (Blommaert et al., 2006; Creese & Blackledge, 2011). Contrastingly, school effects research has not yet looked into issues of language. This dissertation brings both traditions closer together and unravels the determinants and consequences of teaching practices that tolerate multilingualism, with special attention to the effects that characteristics of the school have on teacher and pupil outcomes.

This dissertation thus contributes to both the field of sociolinguistics and that of school effectiveness research. This dissertation contributes to the sociolinguistic field by using a large-scale data set and quantitative methods in order to consider differences between schools. Since traditional sociolinguistic research mainly focuses on a small number of school contexts, it cannot make explicit claims about the influence of contextual factors. The use of extensive data sets renders the chance of looking at how linguistic composition and a school's culture towards multilingualism can affect pupil outcomes. This dissertation has also shown how the linguistic pupil composition of schools can be an influencing factor in the development of teaching practices towards multilingualism. Another contribution of this dissertation concerns the contexts under focus insofar as it looked at how multilingualism influences mainstream education. Sociolinguistics, in contrast, has mainly focused on specialized programs for second language learners (e.g. Bonacina & Gafaranga, 2011; Olmedo, 2003; Razfar, 2005). This research is thus an

extension of the research of Sierens and Van Avermaet (2014), who looked at what can be done in mainstream schools with a superdiversity of languages and a pupil population with a low socioeconomic status.

School effectiveness research can also learn from insights in this dissertation. First of all, the focus on language in general and pupils' multilingualism in particular is new for this field. This dissertation shows that the aspect of multilingualism can be a valuable addition to both research on pupil outcomes – for instance when we think about how the linguistic perspective adds to knowledge about interethnic friendships – , as well as research on teacher outcomes – as it can give more insight into teachers' beliefs about pupils from ethnic minorities. Since language is often focused on by teachers as a reason why pupils from ethnic minority background underperform in school (Van den Branden & Verhelst, 2007), language is an important element to include in research, certainly in a regional context like Flanders in which the issue of language is hyper-sensitive (Blommaert & Van Avermaet, 2008). Adding language to the broad scope of variables, will most definitely contribute to a more comprehensive understanding of school effectiveness.

As far as methodology is concerned, we advise – just as Mortelmans (2011) does - that other researchers intensify the usage of mixed-method research strategies. In this dissertation, both qualitative and quantitative data were used. Since this dissertation is mainly quantitative in nature, the qualitative data really added perspective and context to the studies and proved to be very useful in interpreting and framing the results of the quantitative analysis. The qualitative data brought nuance to the findings, for instance by indicating that teachers tolerate multilingualism due to different motivations. At the same time, qualitative data helped us interpret and explain the quantitative data, for instance when the quantitative data indicated that tolerant practices towards multilingualism did not change friendship patterns in pupils from Dutch-only homes.

The main findings of this dissertation reflect the general tendency in earlier research that teachers do not welcome the multilingualism of their pupils to the fullest (e.g. Gogolin, 2002). It might be that teachers think about tolerating multilingualism in school as they are partly convinced of its benefits, but still have questions and doubts – or lack knowledge of appropriate methods and practices. For instance, teachers fear that if multilingualism is tolerated at school, pupils will only want friends with the same home language, leading to the formation of language-specific groups will at school. This fear is unfounded, however, as this dissertation shows that multilingual pupils even have more

diverse friendships when multilingualism is tolerated at school. Although there were school team members in our sample who allowed multilingualism, because they believed in the value of the pupils' home languages for learning and pupils' well-being, in general multilingualism was rarely allowed in schools. The focus groups with teacher teams showed us that when it was tolerated, this was often because of an underlying monolingual ideology: For instance, some teachers believed that the act of prohibiting multilingualism at school, made using home languages more attractive to pupils since it could represent their rebellion against school. We also noted that teachers in strongly diverse schools had a more tolerant stance towards the usage of pupils' home languages at school, since they believed Dutch would always be necessary to be used as a *lingua franca*. In contrast, school team members in more language-homogeneous schools were less keen on allowing multilingualism, since they feared pupils' Dutch skills would decline severely. Therefore, the term *tolerance towards multilingualism* was thus very suitable for the topic of this dissertation, as it corresponds with the considerations of Wijnberg (2014). He focuses on the case of the lesbian, gay, bisexual and transgender (LGBT) people and states that tolerating a certain behavior actually indicates the general disapproval of the behavior. If, for instance, LGBT pride parades are "tolerated", this means that they are by and large seen as an act that is disapproved of but is still given space. It would be a whole other story if LGBT's would no longer be 'tolerated' due to their existence and visibility being seen as something completely normal. As such, a certain rejection is inherent to tolerance, which is what we could see in school team members where multilingualism was concerned.

Another salient outcome of this study is the very strong dominance of Dutch that is not only expressed by teachers, but also by pupils, multilinguals and those from Dutch-only homes, in focus groups (paralleling the findings of Agirdag, 2010 in secondary school pupils). As expected, we also found that multilingual pupils' well-being in Flemish schools does not match that of pupils from Dutch-only homes. This dissertation, for instance, shows that multilingual pupils feel less connected to school than their peers from Dutch-only homes. This confirms the small-scale findings of sociolinguistics that language is used as part of pupils' identity (Rampton, 1995) and when this identity is not welcomed at school, this can have negative consequences for pupils connection to school (Cummins, 2001). Also did we note that when multilingual pupils feel ashamed when using their home language, they are more likely to get lower grades. This association can be interpreted in two ways, depending on the direction of causality: Those lower grades scored by multilingual pupils might, on the one hand, be due to the experience of a

stereotype threat (Steele, 1997; Steele & Aronson, 1995). Multilingual pupils feel their group is stereotyped as achieving less academically, which causes them to focus less on the task at hand and more on their fear of confirming the stereotype about the group of multilingual pupils. On the other hand, it might be that multilingual pupils with lower scores feel more ashamed about their home language since it is pointed out as an obstacle to school success (Agirdag, 2010). Whatever the causal direction of the effect, the repression of multilingual pupils' home languages might thus work against any goals involving pupils' well-being and sense of belonging to school.

This dissertation has identified two important characteristics of the school for teachers to act more tolerant towards multilingualism: the pupil composition of the school and the school's readiness for reform. Firstly, in terms of the pupil composition of a school, we noted that teachers in linguistically diverse schools do allow multilingualism into the school more often than their colleagues in less diverse schools. As said, this can be motivated out of a monolingual ideology: teachers allow multilingualism to avoid a counter reaction against the usage of the dominant language in pupils; or, multilingualism is allowed because teachers believe that the school's diversity sufficiently secures the usage of Dutch. Secondly, earlier research showed that teachers in teams that are reflective and ready to look critically at their own practices are more motivated to experiment (Clement et al., 1995; Harris, 2002; Hopkins, 2001) and this finding was confirmed for the Validiv project that concerns the innovative practice of tolerating multilingualism in the classrooms. This dissertation shows that the Validiv project succeeded in enhancing teachers' tolerant practices towards multilingualism. For this process of change to succeed, some basic conditions for educational innovation at school were found to be very important (consistent with Clement et al., 1995; Harris, 2002; Hopkins, 2001). This meant that for teachers to be able to adapt their practices, it is very important that in their schools they find a safe environment to experiment and develop new ways of teaching. These basic conditions for educational innovation also include characteristics of a school team: trust in each other and energy to start an innovative trajectory were key.

We can say on the basis of this research that tolerant practices towards multilingualism grow more easily in the specific context of strongly diverse schools in terms of multilingualism. But, schools do not choose their pupil population, which makes this factor unadaptable for school teams and principals. However, this dissertation also shows a more malleable factor that encourages tolerant practices towards multilingualism: the basic conditions for educational innovations. This is something schools and policymakers can cultivate. In the policy recommendations, we will address how.

2. Research limitations and recommendations

A first limitation concerns the very specific context in which data for this dissertation is collected, namely: Flemish schools. This dissertation was therefore limited in its scope in two ways: it only focused on Flanders as a region and on the context of schools. Firstly, Flanders is a region bearing a strong tension on topics of language, this is also mirrored in education. The Dutch-only language ideology is strongly represented in schools and tolerant practices towards multilingualism are rare. Since this was the setting of our research, this also constituted the boundaries of what we, as researchers, could look into. It was impossible to estimate how educational realities that were very tolerant or even encouraging towards multilingualism would affect pupil outcomes. Janmaat (2011) noted a similar limitation in his research on interethnic relations between pupils in schools. He noted that due to his research context, he did not have data on a situation where all aspects of minority pupils' identity would gain full access to the classroom. He anticipated, however, that feelings of threat between pupils might grow and interethnic relations would deteriorate. Similarly, in this dissertation, we could not look at the impact of acceptance and integration of multilingualism on pupils' relationship to school, themselves and peers, since this situation simply does not exist (yet). Tolerant practices towards multilingualism might further enhance desirable effects, for instance, when taking pupils' school belonging into account. The question thus remains, what realities at school might look like when multilingualism is more profoundly integrated into primary school contexts.

A second limitation concerns the research context of schools. This dissertation only focuses on what happens when multilingual pupils are at school. For instance, this dissertation shows how Dutch dominant bilingual pupils have difficulties feeling at home in schools that are rather tolerant towards multilingualism. We suggest that this might be due to the home context, in which those pupils, more often than other pupils, get the message to focus on the acquisition of Dutch. Therefore, we suggest looking into pupils' home context as well. It might be interesting to unravel how language ideologies are expressed in both the home and the school contexts and how those expressions influence pupil outcomes. Studies that link pupils' school and home context are rare (for an exception see Martínez-Roldán & Malavé, 2004), but might be very interesting, since those can bring insight into how both settings interact.

As for the measures used in this dissertation, we first focus on the limitations of the measure of multilingualism in pupils itself. In most studies of this dissertation, pupils

are categorized into two groups: a group of multilingual pupils and a group that only speaks Dutch at home. In a sense, this is a rather artificial dichotomy, since most pupils are multilingual to some extent. The complexity of multilingualism is huge and all pupils are unique in their linguistic repertoires (Martin-Jones, Blackledge, & Creese, 2012). This dissertation also includes a measure of self-assessed multilingual proficiency, which includes how pupils assess their languages themselves, but there are several aspects that even this measure could not take into account: the frequency of the usage of different codes, or the relationships in which pupils use some parts of their linguistic repertoires rather than others, let alone the instances in which pupils naturally mix codes with each other and use their full linguistic repertoire in just one conversation. It seems clear that multilingualism is that complex, that it is hard to capture that whole complexity into one quantitative measure. However, even this humble attempt to quantify multilingualism in pupils has brought us to some important insights. For instance, pupils who are categorized as home language dominant bilingual seem to feel less connected in schools that are tolerant towards multilingualism than their peers. Moreover, multilingual pupils who feel less confident in Dutch report to feel ashamed more often when using their home language than pupils who are more confident in Dutch.

Along with the measure of multilingualism, the cognitive testing was not ideal either. All pupils completed the tests in Dutch and therefore, the test not only measured pupils' achievement in science and reading comprehension, but also measured their Dutch proficiency. Due to the broad linguistic diversity in pupils and issues of validity between tests in different languages, we nevertheless chose to test pupils only in Dutch. Since the Validiv project encouraged pupils to learn in both their home language and in Dutch, testing the pupils in Dutch might miss the acquisition of new knowledge through and of their home language. It would have been very interesting to test children in both Dutch and their home language in order to compare tests in both languages. Testing the pupils in Dutch only, however, was very interesting since this situation resembles how they are tested by teachers.

Another limitation of the measures used in this dissertation concerns the data that were gathered from the Validiv school coaches. They completed the questionnaire about the trajectory of the schools in the implementation condition only when the implementation had ended. We realize retrospectively that it would have been better to follow up on the implementation more closely during the implementation phase. Unfortunately, we did not, and this left us with the only option of asking the school coaches about the

implementation trajectory afterwards. Nonetheless, having this retrospective data is better than having no data at all.

As the mixed-method strategy paid off in this dissertation, we would recommend future researchers to continue using this technique. For instance, we learned from this dissertation that teachers express a variety of different motives for tolerating multilingualism in the school context. However, what is yet to be discovered is whether pupils are able to distinguish between these motives, and which effects the differences can have on pupil outcomes, such as sense of school belonging. In this respect, the quantitative effects of teachers' tolerant practices towards multilingualism in pupil outcomes could be more profoundly investigated, in combination with interviews with pupils in order to explore their perceptions of teachers' practices.

As scientific research is always a work-in-progress, this dissertation raised some questions that yet remain to be unanswered and can be considered as recommendations for future research. For instance, this dissertation was innovative in focusing on the school level when considering multilingualism at school. It mainly focused on the linguistic pupil composition of schools and teachers' shared tolerant practices towards multilingualism. However, the influence of other school characteristics still remains to be discovered. For instance, the linguistic teacher population of schools might play a role in how school teams approach multilingualism as well. Previous research has already shown that an ethnic match between teacher and pupil can influence the quality of teacher-pupil interactions (Saft & Pianta, 2001). It might thus be that teachers who have a multilingual background themselves, and in this sense match with their pupils, develop a stronger teacher-pupil relationship and know better how to support multilingual pupils than teachers who do not have experience with multilingualism in their personal life. Including the linguistic composition of the teacher team of schools, however, would not be easy to investigate in the context of Flanders since only a very small number of teachers have multilingual backgrounds.

A last point of recommendation can be useful for the entire academic world and regards the funding of research. This dissertation suggests that more time might be needed for implementations to show quantitatively measurable effects. Our research did show that an implementation of two school years can affect teaching practices, but does not show changes in pupil achievement. This might be due to the short time lapse of the project and/or the limited budget for the coaching of the schools. Projects that allow researchers to follow pupils for a longer period of time, might be better suited to estimate long term

effects of certain educational approaches. This issue is not only related to research projects focusing on education, but to many research projects in other fields as well. Funding organizations should reconsider their roles and realize that a research period of four years just might be too short to scientifically prove the value of an implementation. At the same time, researchers should break down the expected causal chain and focus on each of the links of that chain (Chen & Mathison, 2005; Chen & Rossi, 1980). That way, researchers can join forces and blend different research results together, rather than wanting to prove every step of a supposed causal chain in a single study. For instance, this dissertation showed that an implementation project like Validiv is able to influence teaching practices with respect to multilingualism and unless this does not show statistically in the same analysis, those tolerant practices towards multilingualism are found to link to pupil outcomes in other analyses. Integrating those stories enables us to draw broader conclusions than we would otherwise be able to, waiting for each individual study on its own to result in the same finding.

3. Policy recommendations

A burden for teachers to experiment with tolerating multilingualism in their classrooms are their doubts, questions and fears regarding the consequences. This is something in which researchers can play a role. Teachers think, for instance, that pupils will form language-specific groups (Ramaut, Sierens, Bultynck, et al., 2013) or that the acquisition of Dutch will suffer when multilingualism is fully welcomed at school (Van den Branden & Verhelst, 2007). Informing the teachers about research results and even collaborating with them to obtain research results is therefore very important. In this way, researchers and teachers can share concerns and address these worries very precisely. Or, teachers might benefit from doing some research themselves, as then they are very involved in the research and might be more keen to implement the findings in their classroom practices (Burbank & Kauchak, 2003; Cochran-Smith & Lytle, 2009).

Teachers in linguistically diverse schools can be praised for their responsive teaching, since they seem to be more tolerant of multilingualism in school than their counterparts in schools with less linguistic diversity. Although this tolerance can also be motivated by monolingual ideologies, it seemed to be a great support for pupils' well-being, since this dissertation found that the negative effect of linguistic diversity in pupil populations is countered by means of the tolerance of teachers towards multilingualism in those schools. This finding can be put into a broader perspective, as Vantieghem (2015) has

found similar results when considering tolerance towards different expressions of gender: She found that in schools that were more tolerant towards pupils who did not fit the typicalities of their gender category, all pupils had a stronger sense of well-being than in schools that were less tolerant. Therefore, it seems that teaching practices that welcome and encourage pupils' full identity in the school context, are beneficial for all pupils, even for those that are not divergent from a certain norm. We can even extend these findings to other identity markers, such as SES and ethnicity, as those are strongly related to pupils' home languages (Heath & Cheung, 2007; Van Der Wildt, Van Avermaet, & Van Houtte, 2015). Multilingualism is only one aspect that needs to be included, not only in school life, but also in official administration, professional environments and the media. If we aim at fighting social inequality and want everyone to grow to their full potential, all aspects of diversity need to be taken into consideration and valorized in various social contexts (see also Van Avermaet & Sierens, 2010).

This dissertation shows no undesirable effects of tolerating multilingualism at school. Although it does not show any effects of the educational innovation on learning results, it does show advantageous effects of teachers' tolerant practices towards multilingualism for pupils' well-being and peer relations at school. These non-cognitive aspects, however, are very important conditions for learning to happen (Goodenow, 1993). If pupils do not feel connected to school, nor feel good in the school context, learning is not their primary concern. Therefore, as tolerant practices towards multilingualism encourage pupils' well-being, they also constitute the conditions for pupils to learn, an effect that might be visible only in the long term. This dissertation shows some characteristics of the school that can encourage teachers to experiment with tolerating multilingualism in their classrooms: First of all, teachers were more open towards innovating their classroom practices when the schools in which they taught provided a safe environment that supported teachers when they experimented with new pedagogies (consistent with the findings of Harris, 2002; Stoll, 2009).

This encouraging environment for innovative teaching practices can be stimulated on two levels: the level of policymakers and the level of the school. Both levels can reinforce a school's capacity for change by supporting the school as an open and trusting environment for teachers to develop themselves professionally. On the one hand, this means that policymakers should continue supporting collaboration between colleagues (Harris, 2002) and initiatives of professional development in the own classroom (Harris, 2002; Hopkins, 2001). For instance, this can be done by providing teachers with sufficient time to sit together or observe each other's practices during the school day. In Flanders, a

full-time assignment in secondary school teachers constitutes fewer teaching hours than it does in primary school and kindergarten. This inequality could be corrected in order to provide kindergarten and primary school teachers with more time to collaborate.

On the other hand, it is the task of school principals to ensure this safe environment in his/her school. This means that they could actively encourage teachers to work together more often and step into each other's classrooms to observe the other teacher's teaching practices (Harris, 2002; Stoll et al., 2003). For instance, this could mean that teachers get involved in each other's professionalization trajectories. Through observing each other, they provide feedback to each other and also gain inspiration for their own teaching practices. It might also help if the teachers' schedules are rearranged in order for them all to have some time during the school day to sit together with their colleagues and share experiences or prepare activities together. The creation of a safe learning environment for teachers is crucial (Stoll et al., 2003). Principals need to coach and not merely evaluate school team members. Teachers need to feel they are allowed to make mistakes in order to grow in their teaching practices (Harris, 2002).

4. Conclusion

Looking at a topic from different points of view can bring more insight than focusing on the topic from only one perspective. This dissertation is a fusion in three different ways: fields of research, methods and research objects.

The exercise to bring sociolinguistics and school effectiveness research closer together has added to both fields. As sociolinguistic research mainly focuses on the detailed analysis of specific educational contexts, it had not yet focused on the role of the school level. Using the CIPO-model from school effectiveness research, the school level was also included in the research on multilingualism at school. Additionally, school effectiveness research gained from the insight that pupils' home languages need to be considered when estimating effects of school characteristics on pupil and teacher outcomes.

Mixed-method research is particularly strong, since qualitative research can unravel aspects that would otherwise remain hidden when only quantitative methods are used, and vice versa. The quantitative results of this dissertation look into the large-scale effects of the linguistic composition of schools on teaching practices and the effects of those shared practices in school teams on pupils. Qualitative research has brought a deeper insight into the context and meaning of the quantitative results.

Studying tolerant practices towards multilingualism with data on both teachers and pupils, has contributed to drawing a more complete picture of the topic. This dissertation showed not only how those practices can affect pupils, but also how they are formed and changed in teachers.

For the future, I recommend continuing building bridges and even crossing borders between methodologies and research fields. All those different perspectives were indispensable to the carrying out of this research project. This dissertation thus illustrates how research that is rooted in different fields and methodologies can produce fruits for innovative scientific knowledge production.

Part 4

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Part 5

Summary
Samenvatting

Due to continued migration flows, societies are becoming very diverse. Migrants bring a wide variety of languages to Flanders and this linguistic diversity is also reflected in schools. Teachers struggle with this increased diversity and do not know how to handle it. They often resort to mainstream ideologies and common sense in their teaching practices. This results in teaching that ignores or even problematizes the use of multilingualism in the classroom.

Sociolinguistic research, however, shows that multilingual pupils naturally use their full linguistic repertoire for learning and identity construction. This research field has profoundly studied language practices in education, but has mainly done so in small-scale and very specific settings. This dissertation, therefore, sought inspiration in school effectiveness research and took the challenge to broaden the sociolinguistic insights and investigate how schools contribute to teaching practices involving multilingualism.

The empirical studies in this dissertation show that most teachers do not provide space for pupils' home languages at school. Of course, there are teachers that do tolerate multilingualism, but a lot of them do so out of monolingual beliefs. However, positive effects can be distinguished when we look at those grassroots instances of tolerance towards multilingualism, such as pupils feeling a stronger connection to the school and multilingual pupils developing more mixed friendships.

This dissertation also evaluated an educational innovation trajectory aimed at changing teachers' practices towards multilingualism. The trajectory was effective in enhancing tolerance towards multilingualism in teachers. That impact can be further enhanced by fostering the schools' capacity to change, for instance by strengthening teacher teams and providing a safe environment for teachers to experiment in. However, the trajectory did not impact pupils' outcomes. This might be due to the short term and low intensity of the trajectory.

By combining sociolinguistics and school effects research, focusing on pupils and teachers and using a mixed-method design, this dissertation has shown that tolerating multilingualism at school does not actually provoke some of the negative consequences that are feared by teachers, but also that some teachers and schools are not fully ready yet to change their teaching practices towards multilingualism. Therefore, researchers and teachers could work more closely together in order to bring about research relevant for professionals in the field and remove teachers' fears by providing adequate information.

Migratie maakt onze samenleving steeds diverser. Migranten brengen een waaier aan talen mee en die talige diversiteit stroomt ook de scholen binnen. Leerkrachten vinden het echter moeilijk met die talige diversiteit om te gaan en stellen zich vragen. Meestal vallen zij terug op algemeen aanvaarde ideologieën of gezond verstand, wat dan weer resulteert in lespraktijken die de aanwezigheid van meertaligheid negeert of problematiseert.

Sociolinguïstiek vindt echter dat meertalige kinderen hun volle talige repertoire op een natuurlijke wijze inzetten om te leren en hun identiteit te vormen. De sociolinguïstiek heeft de talige onderwijspraktijken nauwkeurig bestudeerd, maar dat vooral kleinschalig en in zeer specifieke contexten. Dit doctoraat putte daarom uit schooleffectenonderzoek om sociolinguïstische bevindingen te verbreden en te onderzoeken hoe schoolkenmerken bijdragen aan lespraktijken ten aanzien van meertaligheid.

De empirische studies in deze dissertatie tonen dat de meeste leerkrachten geen ruimte laten voor de thuistalen van leerlingen op school. Uiteraard zijn er leerkrachten die dit wel doen, maar ook een groot deel van deze leerkrachten bieden ruimte voor meertaligheid vanuit een perspectief van eentaligheid. Wanneer we kijken naar deze eerder beperkte initiatieven van tolerantie ten aanzien van meertaligheid, zien we positieve effecten op het thuisgevoel van leerlingen op school en merken we dat meertalige kinderen een meer gemengde vriendengroep ontwikkelen.

Deze dissertatie evalueerde een onderwijsinnovatie met als doel de lespraktijken inzake meertaligheid te veranderen. Die was effectief in het versterken van de tolerantie voor meertaligheid bij leerkrachten en kan mogelijk nog verder bekrachtigd worden door een focus op de innovatiecapaciteit van scholen, bijvoorbeeld door het versterken van schoolteams en door te zorgen voor een veilige omgeving voor leerkrachten om te experimenteren. Toch vonden we geen impact van de innovatie op leerlingen. Mogelijks wordt dit veroorzaakt door de korte termijn en de lage intensiteit van de innovatie.

Door de combinatie van sociolinguïstiek en schooleffectenonderzoek, het focussen op leerkrachten en leerlingen en het gebruik van een mixed-method design, toont deze dissertatie dat bij tolereren van meertaligheid op school enkele van de effecten waarvoor leerkrachten vrezden, uitblijven. Maar we zien ook dat sommige leerkrachten en scholen nog niet volledig klaar zijn om hun lespraktijken ten aanzien van meertaligheid te veranderen. Om dit te bewerkstelligen zouden onderzoekers en onderwijzers intensiever samen kunnen werken aan onderzoek dat relevant is voor de praktijk en om de twijfels van leerkrachten rond meertaligheid op school weg te nemen.

Part 6

Appendix

1. My contribution to each of the empirical studies

Since I am not the only author of the empirical studies, in this section I will elaborate on my contribution and that of others to each part of this dissertation.

To start with, the Validiv research proposal which was accepted for funding by the Agency for Innovation by Science and Technology, was primarily written by Sven Sierens and Orhan Agirdag. In this process, they received profound advice and guidance from the supervisors of the project: Mieke Van Houtte, Piet Van Avermaet, Stef Slembrouck, Johan van Braak, Peter Lambert, Koen Van Gorp, Kris Van den Branden and Piet Van De Craen. In the Validiv research proposal, the very broad outline of my research was formulated. The Validiv project was further supervised by Mieke Van Houtte, Piet Van Avermaet, Stef Slembrouck, Johan van Braak, Peter Lambert, Koen Van Gorp, Kris Van den Branden, Piet Van De Craen and Orhan Agirdag.

The quantitative data gathering was prepared and carried out by the whole Validiv team: Evelien Van Laere, Kathelijne Jordens, Lies Strobbe, Evita Willaert, Jill Surmont, Vicky Verley, Orhan Agirdag, Sven Sierens, Lore Van Praag and me. In the preparation of the data gathering, I participated in the design team of the questionnaires, in which I mainly focused on the development of the non-cognitive questionnaires.

As supervisors of my PhD, Mieke Van Houtte and Piet Van Avermaet advised me in every step of my research project. When writing the introductory part and conclusion of this dissertation, my supervisors inspired me for important complements and refinements. We also discussed the co-authored studies one, two and four together. I performed the analyses and wrote a first draft, which received thorough feedback from both of my supervisors. This feedback helped me in my development as an academic writer.

In studies three and five, we collaborated with other Validiv colleagues. In study three, I intensely worked together with Lies Strobbe, all parts of this study are results of our joint work, except for the analyses: Lies Strobbe gathered and analyzed the qualitative data and I analyzed the quantitative data. Drafts for this article received thorough feedback from my and Lies's supervisors: Koen Van Gorp, Kris Van den Branden. In study five, Evelien Van Laere was my fellow worker. All parts of this study, including the analyses, are results of joint work in which we had an equivalent share. We received feedback to our drafts by my supervisors and Evelien's supervisor: Johan van Braak.

2. Permission documents for empirical studies 3 and 5

To whom it may concern:

As the first author, I hereby declare that I give Anouk Van Der Wildt permission to include the article "How School Teams Perceive and Handle Multilingualism: The Impact of a School's Pupil Composition" by Strobbe, Lies; Van Der Wildt, Anouk; Van Avermaet, Piet; Van Gorp, Koen; Van den Branden, Kris and Van Houtte, Mieke as a chapter in her PhD dissertation.

Yours faithfully,

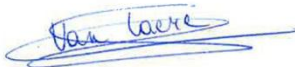


Lies Strobbe

To whom it may concern:

As the first author, I hereby declare that I give Anouk Van Der Wildt permission to include the article "Recognizing Linguistic Diversity for Learning: What Does It Mean for Pupils' Science Achievement and Feelings of Shame?" by Van Laere, Evelien; Van Der Wildt, Anouk; Van Avermaet, Piet; Van Houtte, Mieke and van Braak Johan as a chapter in her PhD dissertation.

Yours faithfully,



Evelien Van Laere